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THE EFFECT OF PHOSPHORUS ON GROWING, NORMAL AND DISEASED BONES *

D. B. PHEMISTER, M.D.

CHICAGO

Since the experimental work of Wegner[1] in 1872, showing the effect of phosphorus on growing bones in animals, it has been used more or less extensively as a therapeutic agent in disorders of ossification. Almost no postmortem or other evidence, however, has been offered as to the exact changes which it brings about in the bones of man.

Wegner administered 1/400 grain of yellow phosphorus daily to young growing dogs, cats and chickens over considerable periods of time, and observed definite changes which in case of the long bones may be thus summarized: There was increased new bone formation in the diaphysis which was especially marked along the epiphyseal lines, leading to the formation of a dense layer in the ends of the shaft which varied in thickness with the length of the period of phosphorus administration. When the period was short, the zone of dense bone was narrow; but when prolonged, it was broad and in some instances included almost all of the trabeculated portion of the ends of the shaft. The cortex of the shaft was increased in thickness from both periosteal and endosteal new bone formation, but the change was not as striking as that in the end of the shaft except in the case of the chicken, in which the medullary cavity of the shaft was practically obliterated and the bones greatly increased in weight. Changes were also observed in the epiphyses. A dense narrow line of new bone formed about the periphery of each center of ossification. Adult bones were not affected by the administration of phosphorus. He found similar slight changes in a child with atrophic but otherwise normal bones which had received small doses of phosphorus during the two months previous to its death. The bones of three children dying of rickets which had been treated with phosphorus were studied and somewhat similar changes found in one of them. He was skeptical about the value of phosphorus in rickets which was regarded as a condition in which the power of depositing lime salts has been lost by the bony tissues. In this event the phosphorus would stimulate the still further formation of osteoid tissue, which would, however, remain unossified during the florid stage of the disease. Wegner also produced fractures and found that phosphorus stimulated the formation and ossification of callus, but he gives no instance of its use in delayed or nonunion in man.

Fig. 1 (Case 1).—Perthes' disease of right hip before beginning administration of phosphorus.

Red phosphorus and phosphorus compounds, except large doses of calcium phosphate, produced no effects.

Kassowitz[2] repeated and confirmed Wegner's experiments and brought out the additional fact that from two to four times the dose of phosphorus that produces osteosclerosis leads to osteoporosis and the typical picture of experimental rickets. He used phosphorus extensively in rickets with good clinical results.

Kissel[3] experimented with phosphorus, and concluded that it produced no general changes in the bones; but he apparently used ten times the dose employed by Wegner, which explains the difference in results. Miwa and Stoeltzner[4] were also able to confirm the finding of Wegner in a few of their experiments, and Stoeltzner as a result of extensive clinical experience has been a firm advocate of phosphorus therapy in rickets.

Cod liver oil was used in the treatment of rickets before the introduction of phosphorus, and later the two substances were combined. Many regarded it largely as a convenient vehicle for the phosphorus and without any special therapeutic value. However, more recent studies in the calcium metabolism of healthy and rachitic children have tended to reverse this opinion.

* From the Department of Surgery, Rush Medical College.

1. Wegner: Virchows Arch. f. path. Anat., 1872, **55**, 9.
2. Kassowitz: Ztschr. f. klin. Med., 1884, **7**.
3. Kissel: Virchows Arch. f. path. Anat., 1896, **144**.
4. Miwa and Stoeltzner: Jahrb. f. Kinderh., 1898, **47**.

Schabad,[5] in a series of articles, has maintained that phosphorus when administered alone in the usual therapeutic doses causes no increase in calcium accumulation in the body, and in some of the cases studied even accelerated its elimination. Cod liver oil alone causes a moderate increase, while cod liver oil and phosphorus cause a marked increase in the calcium accumulation. Lime salts, especially calcium lactate when given with cod liver oil and phosphorus, increase still further the calcium accumulation. Where the action is favorable there is not only an increased retention of the calcium intake, but a relative diminution in the calcium output both by the stools and by the urine. He concludes that the cod liver oil, not the phosphorus, is the primary active substance, and that the phosphorus acts secondarily by augmenting the accumulation that is started by the oil. Somewhat similar studies have been made by Schloss,[6] which tend to support these views.

As 98 per cent. of the calcium of the body is stored up in the bones, they should show a variation in calcium content in case of an increase or decrease in the amount retained in the body. This can be determined either by studies at necropsy or by roentgen studies of the bones in the living. No evidence of either kind is offered by Schabad or Schloss in support of their claims. Consequently the roentgenographic studies of the following cases in which phosphorus alone was administered are of interest.

Fig. 2

Fig. 3

Fig. 2 (Case 1).—Right knee eight months after beginning treatment with phosphorus. Note heavy, broad shadow in the end of the shaft of each bone.

Fig. 3 (Case 1).—Four months after discontinuing phosphorus. Growth has continued; an unexpected finding is that a second line has formed in the immediate zone of growth along the epiphyseal cartilage which is of about the same density and thickness as the first.

Case 1.—A. P., aged 4, was first seen in November, 1915, with the typical picture of Perthes' disease of the right hip of six months' standing (Fig. 1). The joint was immobilized for three months by a plaster-of-Paris cast, and phosphorus, 1/500 grain, was given three times a day, in order to determine its effect on the diseased epiphysis of the head of the femur. Roentgen-ray studies were also made of other regions in order to study the effects on the normal bones. The phosphorus was continued for eight months, at which time Figure 2 was taken of the right knee. It shows a heavy, broad shadow in the end of the shaft of each bone, being broadest in the femur where the longitudinal growth is greatest. The cortices of the shafts do not appear to be thickened. The epiphyses of all three bones show a fairly dense narrow shadow about the periphery of the centers of ossification. The drug was then stopped, and Figure 3 shows the condition four months later. Growth has continued, and the epiphyses have thereby been carried beyond the lines in the ends of the shafts, which lines are also narrower and less dense than in Figure 2. An unlooked for finding is that a second line has formed in the immediate zone of growth along the epiphyseal cartilage which is of about the same density and thickness as the first. The epiphyses show a second shadow of a layer of new bone outside of the dense layer formed during the period of phosphorus administration. This is best seen on the epiphysis of the fibula, and the sides of the epiphysis of the femur.

Roentgenograms at the end of another four months (Fig. 4) show the same two sets of lines in the ends of the shafts and epiphysis; but they are much fainter, narrower and more widely separated than at the previous examination. The phosphorus was then administered for five weeks, and seven and one-half months later roentgenograms were again taken (Fig. 5). Three faint lines are now visible in the ends of the shafts about the knee; one deep in the shaft from the

Fig. 4

Fig. 5

Fig. 4 (Case 1).—Four months after Figure 3 was taken. Of special interest in Figures 4 and 5 is the evidence of continued bone formation in the end of the shaft over a prolonged period after the phosphorus had been stopped.

Fig. 5 (Case 1).—Seven and one-half months after Figure 3 was taken.

5. Schabad: Ztschr. f. klin. Med., 1909, **57**, 454; 1909, **58**, 94; 1910, **59**, 435; Jahrb. f. Kinderh., 1910, **72**, 1.
6. Schloss: Jahrb. f. Kinderh., 1915, **82**, 435; 1916, **83**, 46; Monatschr. f. Kinderh., 1914, **13**, 291.

first administration, a second near the epiphysis from the second administration, and a third in the recent zone of growth along the epiphyseal cartilage. The inner line formed in the epiphyses from the first administration is still faintly visible, but no middle or outer dense lines are seen. The same

Fig. 6 (Case 1).—Affected hip two and one-half years after onset of disease. Phosphorus appears to have had little influence on the course of the disease.

changes were found on roentgen examination of the ends of other long bones.

The cause of the continued, although less marked dense bone formation in the end of the shaft along the epiphyseal line, over a prolonged period of time after the phosphorus had been stopped is problematical, but the following two factors are to be considered: First, that phosphorus may be retained in the body and exerts a cumulative action, and second, that the excessive calcium salts stored up in the form of bone in the immediate vicinity may act as a stimulus and cause the dense bone formation. In favor of the former is the observation of Schabad's that wherever there was calcium accumulation there was also an increase in phosphorus retention. Such accumulation is, however, in the form of phosphates, and there is no evidence of the storing up of the element phosphorus as such in the body. In favor of the latter there are no anatomic or roentgen-ray observations; but the metabolic studies of Stoeltzner and Etienne show that moderate doses of calcium salts cause both a relative and an absolute increase in the amount of calcium retained. It is possible that the excessive lime salts stored up in the form of bone, which are constantly being liberated, act as a stimulus and lead to the dense new bone formation in the zones of growth. This may explain the manner of action of calcium phosphate as observed by Wegner.

It is of interest to note that the phosphorus apparently had no influence on the course of the disease for which it was given. The epiphysis gradually broke down until it was eventually almost completely destroyed and the neck was greatly deformed. Active symptoms subsided after about twelve months, leaving the hip joint markedly stiffened, and Figure 6 shows the condition two and one-half years after the onset. Meager results were to be expected, as Perthes' disease is in all probability an epiphysitis of bacterial origin, and as the phosphorus has little influence on the slowly ossifying normal epiphysis.

A second case shows the influence of phosphorus on a marked disturbance of the longitudinal growth of the shafts of the bones of one limb, and on the normal bones of the other limbs:

CASE 2.—G. C., boy, aged 7½ years, entered the Presbyterian Hospital, July 18, 1915, with dyschondroplasia (Ollier) of the left lower limb. He had limped since the second year, and the left limb, which was otherwise strong and free from symptoms, had gradually grown much shorter than the right. An operation involving bone transplantation for supposed bone cyst had been performed on the upper end of the femur one year before, with infection, and a resulting fistula that had not healed. The patient was a well developed, healthy boy except for the left lower extremity, which was 3½ inches shorter than the right. Both thigh and leg were involved in the shortness, but the foot was almost free, as it was only slightly smaller than the right. The musculature of the limb was well developed, and all the movements were normal. There was a discharging fistula 3 inches beneath the greater trochanter. The ends of the shortened shafts of the femur, tibia and fibula were slightly enlarged and uneven. Roentgen examination of the ends of the bones revealed the epiphyses approximately normal, but the ends of the shafts for a distance of 2 to 3 inches beyond the epiphyseal lines were expanded and cast very faint shadows, which were streaked by irregular longitudinal lines and dotted irregularly by uneven shadows. This change was most marked in the lower ends of the femur (Fig. 7) and tibia. The upper end of the femur showed a coxa vara with a broadened neck casting a faint shadow and the outline of the necrotic transplant below in the irregular but dense shaft which had been formed about it.

Fig. 7

Fig. 8

Fig. 7 (Case 2).—Dyschondroplasia (Ollier). Note the irregular longitudinal lines and the irregular uneven shadows in the lower end of the femur and tibia particularly.

Fig. 8 (Case 2).—Effect of prolonged administration of phosphorus on dyschondroplasic bone.

The infected transplant was removed, and at the same time for diagnostic purposes a strip was excised the entire length

of the diseased area of the lower end of the shaft of the tibia. It showed that the end of the shaft was filled with a mass of hyaline cartilage with only a thin streaked bony cortex about the periphery, and islands of calcification with beginning ossification were scattered irregularly throughout, making the dotted shadows in the roentgenograms. The condition arises from a dysplasia of the epiphyseal cartilage leading to a piling up of cartilage or an enchondromatous condition in the ends of the shafts and usually affects the bones of one or two extremities. It was decided to try the effects of phosphorus on the diseased condition; so after the hip wound had healed, the patient was given $\frac{1}{500}$ grain in pill form twice daily for three months. Roentgenoscopy revealed moderate changes similar to those in Figure 2 of the preceding case and also including the ends of the affected bones of the left limb. The phosphorus was discontinued for twenty-six months, at which time the only remaining effects of its administration, as shown by the roentgen ray, were the narrow, feeble, transverse shadows in the ends of the shafts at considerable distances from the epiphyseal lines. One hundredth grain pills were then given twice daily and continued fairly regularly for eight months, at which time roentgenograms were again taken.

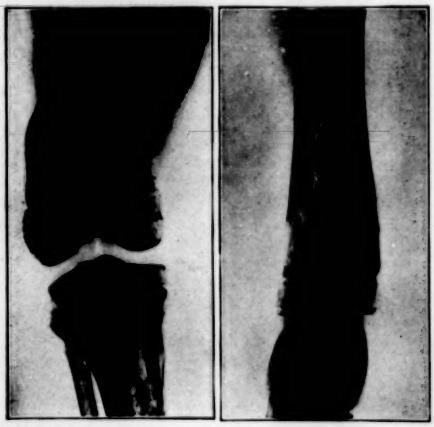


Fig. 9 Fig. 10

Figs. 9 and 10 (Case 2).—Effect of prolonged administration of phosphorus on dyschondroplasic bone.

Figure 8 shows the effect in the normal right limb, where the broad, heavy shadows of the shaft ends represent the bone formation from the recent administration. The narrow line some distance away in the end of the tibia is from the previous administration; but no traces of it are to be seen in the end of the femur or in the epiphyses. In the left limb (Fig. 9) there are no traces left of the first administration except a very faint line seen in the upper end of the tibial shaft.

From the second administration there are zones along the epiphyseal lines and marked enlargement of the irregular spots in the diseased ends of the shafts. The upper end of the tibia where the disease is not marked shows an even broad line, but the lower end of the femur, where the changes are extensive, casts a very irregular juxta-epiphyseal shadow. In its mesial portion there has been little growth along the epiphyseal line, which has produced some bowing of the leg; but the shadows representing numerous islands of the zone of calcification carried upward in the cartilaginous mass have markedly enlarged. This is due no doubt to ossification in and about them and not to a growth of the islands of calcification. The changes are especially well shown in the lower ends of the tibia and fibula, where shadows are seen in the epiphyses from growth about included islands of calcified cartilage (Fig. 10). The transverse growth of the shafts,

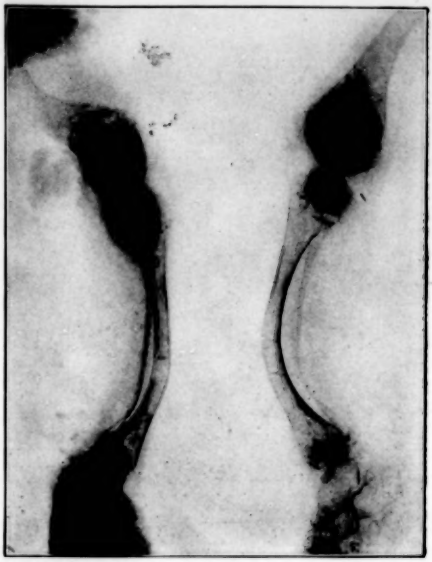


Fig. 11 (Case 3).—Limb bones in osteogenesis imperfecta. The shafts are relatively narrow, and the cortices are very thin.

including the diseased regions, has continued, as seen by comparing Figure 7 with Figure 9, which was made two and

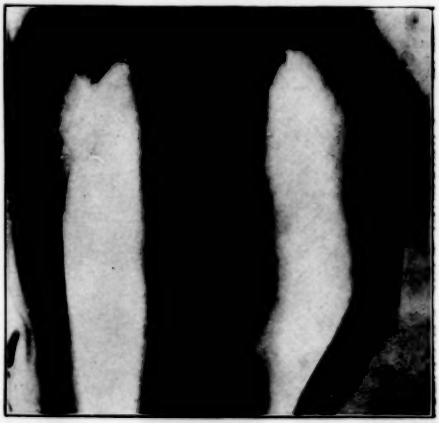


Fig. 12 (Case 3).—Limb bones in osteogenesis imperfecta. The shafts are relatively narrow, and the cortices are very thin.

one-half years later; but there is little evidence of the influence of the phosphorus on it.

It is doubtful if the effect of the phosphorus has been of any value to the patient, as there has been no relative increase in the length of the affected limb. It is conceivable, however, that the prolonged use of phosphorus in enchondromas showing areas of calcified cartilage might eventually lead to their complete ossification.

The following case shows the marked effect of phosphorus on both the longitudinal and transverse growth, where a congenital disturbance of bone growth was present:

CASE 3.—W. N., boy, aged 8, was first seen in May, 1913, presenting the usual picture of osteogenesis imperfecta. He weighed only 25 pounds and had suffered numerous fractures of the bones of the frail extremities since birth which, coupled with a hyposcoliosis, had resulted in marked deformity. He was unable to stand and showed about the mental

Fig. 13 (Case 3).—This and the following illustrations show the bone changes following prolonged administration of phosphorus in a case of osteogenesis imperfecta. There has been marked stimulation of osteogenesis which has led to transverse growth of the shafts—the process chiefly affected in the disorder—as well as to longitudinal growth and growth of the epiphyses. In this illustration, marked transverse growth of the tibiae and fibulae is shown, with no signs of recent fractures.

development of a 4 year old child. Roentgenograms of the limb bones (Figs. 11 and 12)) revealed fairly long but very narrow shafts, the cortices of which were very thin. As a result of the fractures there were marked curvatures and remnants of several old calluses. The epiphyses were relatively large, and their centers of ossification had appeared normally. Epiphyseal lines were distinct except in the lower ends of the femora, where, as a result of injury, they had become obliterated, resulting in marked shortening of the shafts, especially the right one (Fig. 19).

The patient was put on phosphorus pills, 1/500 grain, three times a day, which were continued quite regularly for twenty-six months, when he was again seen. There had been considerable general improvement and a gain in weight of 5 pounds. He was now able to sit, and used the arms more freely, which had resulted in a number of bone injuries during the periods. Roentgenoscopy revealed marked phosphorus changes. There were shadows at the ends of the shafts varying in density and breadth according to the normal rate of longitudinal growth for the region, marked increase in the transverse diameters of the shafts and denser shadows

Fig. 14 (Case 3).—Marked changes in the upper extremities.

about the cortex of the centers of ossification in the epiphyses and in the short bones of the hands and feet and of the patellae. The tibiae and the fibulae (Fig. 13) showed marked transverse growth with no signs of recent fractures. The broad dense shadows at the lower ends of the shafts showed the preponderance of growth in this region. There were no

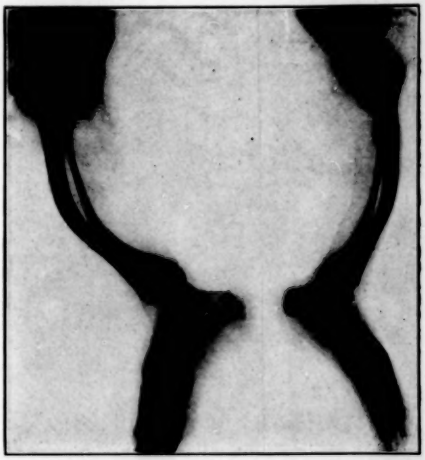


Fig. 15 (Case 3).—Fading of the shadows in the ends of the shafts, and absence of dense shadows in the zones of continued growth.

shadows in the lower metaphyses of the femora, owing to the absence of longitudinal growth from obliteration of their epiphyseal lines. There were marked changes in the upper extremities (Fig. 14), where shadows from the longitudinal

growth were broadest in the lower metaphyses of the radius and ulna. The transverse diameters were greater in the bones of the right arm. This was no doubt due to disuse of the left arm, resulting from fractures, two of which had occurred

Fig. 16 (Case 3).—Left humerus, showing the two fractures with greater angulation and broader unossified intermediary calluses.

in the humerus and one in the radius and ulna, those of the humerus being not yet fully united.

The dose of the drug was then changed to 1/150 grain twice daily, but the mother stopped giving it after about three

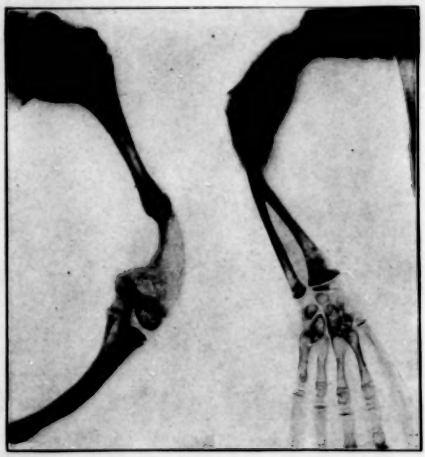


Fig. 17 (Case 3).—Phosphorus changes less extensive than in the first period.

months. The child was next seen one year later. Roentgenoscopy revealed marked fading of the shadows in the ends of the shafts (Figs. 15 and 16) as shown in previous plates, and no dense shadows formed in the zones of continued growth. The diameter of the shafts and thickness of the cortices had remained about the same. Inner markings from the previous administration were seen in some of the epiphyses and short bones of the hands and feet. The left humerus (Fig. 16) showed the two fractures with greater angulation and broader unossified intermediary calluses than in the previous plate. During the nine months that the phosphorus was discontinued there was more rapid absorption of the previously deposited bone than occurred during like intervals from healthy bones of the first two cases reported.

The patient was again put on 1/150 grain of phosphorus twice daily, which was continued for eighteen months, when he was again examined. He was much more active both physically and mentally and could creep about, but was still unable to walk. He weighed 35 pounds, which was a gain of 10 pounds during the four and one-half years that he had been under observation. His mental development had been rapid, and he was doing third grade work in school. The deformity of the left arm had increased, and it was much less serviceable than the right. Six months before he had fractured the right arm, which was treated by a splint with healing. Roentgeno-

Fig. 18 (Case 3).—Phosphorus changes less extensive than in the first period.

grams were again taken, which showed phosphorus changes in the previously mentioned locations; but they were relatively less extensive than for the first period (Figs. 17 and 18). This was doubtless due to the smallness of the dose for his weight and age. The right humerus was relatively large and showed a bony callus at the seat of the fracture. The shaft of the left humerus was small, and the lower fracture shown in the previous plate was still ununited. The upper one had united, and its callus had almost entirely disappeared. In the picture of the pelvis and thighs (Fig. 19), the effects of the different administrations are especially well shown by the lamellae on the crests of the ilia. The dose of phosphorus was increased to 1/100 grain twice daily. Care must be exercised when it is used over such long periods of time in order to avoid the development of chronic phosphorus poisoning, in which, according to Wegner, there is necrosis of the parenchyma and subsequent fibrosis with contraction of the liver and kidneys, and to a less extent of other organs.

The therapeutic value of phosphorus in this case is unquestioned. While it has not removed the underlying cause, osteogenesis has been markedly stimulated, both in the fibrous and enchondral processes of bone formation. This has led to transverse growth of the shafts, which process is chiefly affected in the disorder, as well as to longitudinal growth and growth of the epiphyses.

These findings show that phosphorus affects the normal bones of children in much the same way as described by Wegner for experimental animals. The effects on enchondral bone growth is especially well marked. No definite increased transverse growth could be made out, but if slight it would easily escape detection by means of the roentgen ray, especially as the technic varied with each set of plates. Also for some time after the phosphorus is stopped there is a continued but less marked overproduction of bone in the juxta-epiphyseal region of the shaft which is probably due either to the cumulative effect of phosphorus or to the stimulating influence of the excessive stores of calcium salts in the neighboring bone.

Fig. 19 (Case 3).—Effects in the pelvis and thighs.

COMMENT

The diseased bones showed certain variations. In osteogenesis imperfecta, the transverse growth was as strikingly affected as the longitudinal. All fractures occurring during the period of observation healed except one at the middle of the left humerus, which occurred during the period of interruption of the phosphorus, an inactive stage of nonunion being established before renewal of the drug. Judging from the general effect it produces, phosphorus if given early in fractures during the active period of repair should stimulate callus formation and ossification. In nonunion, however, when the natural reparative impulses have been exhausted, little should be expected from its use.

Roentgen-ray studies of the bones during the administration of phosphorus alone and with other substances in rickets should be of interest. These observations show clearly that phosphorus when given alone has a marked stimulating effect on bone production and consequently of calcium accumulation in the normal zones of growth, and speak against the assertions of Schabad relative to calcium metabolism in healthy children.

During the florid stage of rickets, the bony tissues have lost the power of depositing lime salts; and as phosphorus is presumably unable to restore this power, no appreciable effect from its administration would be detectable by means of the roentgen ray, although it may increase the amount of osteoid tissue formed. During the healing stage, when the power of laying down lime salts begins to return, the phosphorus would stimulate the formation of osteoid tissue and consequently increase the amount of bony tissue formed. It must be remembered that during the healing stage of rickets, from the rapid ossification of osteoid tissue piled up in the metaphysis during the florid stage, a condition forms which roentgenologically resembles very much the phosphorus changes in normal bones.[7] Phosphorus administration would intensify this condition.

122 South Michigan Avenue.

A CONSIDERATION OF SOME DRIED VEGETABLES

WITH SPECIAL REFERENCE TO THEIR NITROGEN AND CALCIUM CONTENT *

MAURICE H. GIVENS, Ph.D.
Seessel Research Fellow in Physiological Chemistry, Yale University
NEW HAVEN, CONN.

From an economic standpoint it is highly desirable, particularly at this time when the transportation of foods occasions unusual difficulties, to eliminate as much water as possible from them and thus reduce their weight and bulk. This furnishes the justification for the attempt to use desiccated foods. Any propaganda for the widespread use of foods prepared in novel ways ought to be supported by scientific evidence of its importance from a physiologic standpoint.

For arctic explorations a supply of vegetables is considered desirable. In some expeditions this has been obtained by the use of desiccated green foods. During the Civil War such dried vegetables as were available were used. At present the various governments are using desiccated foods. The United States Food Administration has directed much effort during the past year in impressing on the minds of the people the value of drying foods. Farmers in this country years ago started drying such products as string beans. A successful community drying plant is no longer an experiment but an institution.[1] The drying of fruit likewise received attention from the Department of Agriculture years ago.[2] The possibilities of conservation by desiccation are obvious.

In considering the value of a food today, its inorganic constituents should receive attention as well as its protein, fat, carbohydrate and vitamin content. Years ago, Bunge[3] and other physiologists emphasized

7. Lovett, R. W.: The Roentgenographic Appearances in Rickets, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2062.

* From the Sheffield Laboratory of Physiological Chemistry, Yale University.

1. Farmer's Bulletin 916, U. S. Dept. Agr., 1917.
2. Yearbook U. S. Dept. Agr., 1912, p. 505.
3. Bunge, G.: Lehrbuch der physiologischen Chemie, Leipzig, 1897.

especially the physiologic importance of the mineral content of foods. The significant rôle which the inorganic constituents of foods may play has of late been demonstrated experimentally in more than one way, notably through the study of synthetic dietaries in which one or more inorganic elements were lacking or present in unsuitable proportions.[4]

Sherman's[5] determinations of the inorganic constituents of a great many foods and also his compilations of recorded analyses are of unusual value to all students of nutrition. He in particular and later Blatherwick[6] have called attention to the significance of the acid and base forming constituents of foods. Forbes[7] has analyzed the ash of a great many foods, but most of his data relate to animal feeds.

Recently Courtney, Fales and Bartlett[8] reported statistics of the inorganic constituents of a number of vegetables subjected to definite conditions of cooking. These authors were particularly interested in determining to what extent cooking by different methods removed the available inorganic components of the foods, bearing in mind the use of green vegetables for their iron and calcium content in infant nutrition.

The student of dietetics recognizes that were it not for the use of milk, eggs and a few green vegetables, our food intake would ordinarily be very deficient in available lime. The present study was planned to supplement our somewhat meager knowledge regarding the composition of desiccated vegetables.

METHODS OF DRYING

Carrots and potatoes were peeled, care being taken not to contaminate the freshly cut surfaces with dirt; they were then weighed, sliced thin, and dried. All other vegetables were handled in an edible form; that is, inedible portions were removed, and the remainder washed thoroughly in cold running water to remove all traces of adherent soil. All vegetables were either dried on a piece of cheesecloth or in a small sieve on an ordinary steam-heated radiator at from 65 to 70 C. (149 to 158 F.).

At the temperature here used in drying, it is wise not to keep those vegetables containing much starch and sugar on the radiators longer than from two to three days, because they then begin to darken. The loss of water in producing these air-dried products was estimated as given in the table.

ANALYTIC PROCEDURES

The moisture still remaining in the air-dried products was determined by drying for from four to five hours in an oven at from 96 to 97 C. (204.8 to 206.6 F.). This temperature in some instances caused a slight darkening; but after many trials at different temperatures, it seemed the best to adopt as a working basis for this analytic procedure.

Ash was determined in the ordinary way on the air-dried material; nitrogen by Kjeldahl's method likewise, and calcium by McCrudden's[9] method. Before the calcium was determined, the ash was always taken down to dryness on the water bath from three to five times with hydrochloric acid to cause the traces of silica to flock out for removal.

THE LOSS OF WATER IN DRYING

The water content of vegetables is so variable that we only report figures on the basis of the solids found after drying as described. Values for raw edible portions mean nothing when the possibilities for a plant to lose water are so many. For example, variations in water content of a green vegetable may be due to the soil, weather at the time of harvesting, manner of shipment, manner of "handling" by the various dealers, period of time from harvest to consumption, and many other conditions.

NITROGEN

The nitrogen content of the dried vegetables is at best only a rough index of their content of protein. The increase in the concentration of protein as the result of drying is most striking; for example, the nitrogen content estimated on the basis of raw sweet potato is 0.3 per cent.; on the dried product it is 1.06 per cent.; in raw spinach it is 0.45 per cent.; in the dried, 4.58 per cent.

PERCENTAGE COMPOSITION OF VEGETABLES, ARRANGED ACCORDING TO DECREASING NITROGEN CONTENT

Name	Materials as Purchased		Air-Dried Material				
	Water	Solids	Moisture	Ash	N	Ca	Ca in % of Ash
Swiss chard*	....	....	4.8	15.2	5.42	1.26	8.3
Beans of String Beans III	80.0	20.0	1.14	5.37	4.98	0.30	5.6
Spinach II	90.2	9.8	3.7	15.9	4.58	0.56	3.5
Beet tops	94.2	5.8	2.3	18.1	4.35	1.66	9.2
Lettuce	96.4	3.6	4.22	10.5	4.01	0.77	7.3
String Beans II	92.8	7.2	6.2	6.8	3.70	0.60	8.8
Spinach I	82.0	18.0	4.7	10.1	3.53	0.60	6.0
String Beans I	90.4	9.6	5.8	6.9	3.47	0.53	7.7
Pods of String Beans III	93.0	7.0	3.56	5.8	3.00	0.87	15.0
Cabbage II	85.0	15.0	6.2	6.0	3.01	0.38	6.2
Celery	97.3	2.1	2.27	16.5	2.90	1.13	6.8
Cabbage I	89.4	10.6	4.5	4.75	2.86	0.55	11.6
Cabbage III	87.3	12.7	6.3	5.5	2.85	0.36	6.6
Potato	79.4	20.6	1.89	3.7	2.13	0.02	0.8
Carrot tops	74.9	25.1	4.1	10.3	1.95	2.14	20.8
"Riced" potato**	....	....	6.43	2.7	1.58	0.01	0.4
Carrots II	82.2	17.8	7.6	4.2	1.30	0.22	5.2
Carrots I	83.5	16.5	5.3	3.7	1.19	0.19	5.2
Carrots III	84.2	15.8	5.9	3.95	1.16	0.20	5.1
Sweet potato	71.7	28.3	6.9	3.1	1.06	0.12	3.9

* Product of the Mrs. O. H. Harriman Laboratory, New York.
** Prepared by Dr. H. C. Gore, Bureau of Chemistry, U. S. Department of Agriculture.

The variation in nitrogen according to the plant or parts of the plant is striking. The starch plants, as potatoes and carrots, notwithstanding a high solid content on drying, have a low protein content. Spinach, Swiss chard, lettuce, celery and cabbage serving as vehicles of roughage and flavor, with a high water content, contain a relatively high percentage of nitrogen in the dried material. Intermediate between these two groups stands the string bean, in which the protein is concentrated ten times or more by drying.

In addition to the variation in nitrogen content according to the plant, there is a noticeable difference in the amount of nitrogen in the different parts of the same plant. Dried Carrots I had a nitrogen content of 1.19 per cent., while the tops from these carrots contained 1.95 per cent. According to a calculation from the tables of Atwater and Bryant,[10] the solids of

4. Osborne, T. B., and Mendel, L. B.: Publication 156, Carnegie Institution of Washington, 1911; Jour. Biol. Chem., 1918, **34**, 131.
5. Sherman, H. C.: Chemistry of Food and Nutrition, Ed. 2, New York, the Macmillan Company, 1918.
6. Blatherwick, N. R.: The Specific Rôle of Foods in Relation to the Composition of the Urine, Arch. Int. Med., September, 1914, p. 409.
7. Forbes, E. B.; Beegle, F. M., and Mensching, J. E.: Bull. 255, Ohio Agr. Exper. Station, 1913.
8. Courtney, Angelia M.; Fales, Helen L., and Bartlett, Frederic H.: Some Analyses of Vegetables Showing the Effect of the Method of Cooking, Am. Jour. Dis. Child., July, 1917, p. 34.
9. McCrudden, F. H.: Jour. Biol. Chem., 1911-1912, **10**, 187.
10. Atwater, W. O., and Bryant, A. P.: Bull. 28, O. E. S., U. S. Dept. Agr., 1906.

beets contain 2.04 per cent. of nitrogen, whereas the sample of dried beet tops here analyzed contained 4.35 per cent. In the case of String Beans III, the nitrogen value of the beans was 4.98 per cent., while of the pods it was 3.09 per cent. In other words, the dietetically unimportant or waste parts of some vegetables contain almost as much nitrogen as, and in some cases more than, the important part of the vegetable, that is, for human consumption.

Notwithstanding these apparently high nitrogen values of some dried foods, it is doubtful whether they are significant from the standpoint of protein intake. Unless we alter our mode of cooking or resort to the use of dried material, it is hardly probable that an individual on his ordinary mixed diet would consume at one meal, in addition to other food, more than from 100 to 200 gm. of the cooked edible portion of any of the vegetables. However, it is not beyond the realm of possibility to dry and comminute the vegetable so finely that one could easily cook the dried material in half of its original water content. In fact, we have cooked our dried carrots in an amount of water equivalent to that driven off from them during the drying process, and have subsequently concentrated the mixture to a palatable consistency. This would have been impossible if the same vegetables had been cooked in their original form.

INORGANIC CONSTITUENTS

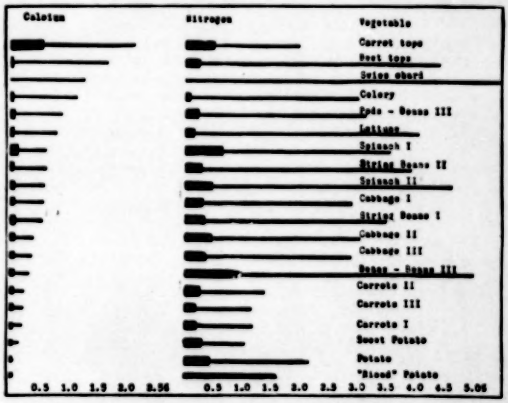
A glance at the table shows that a high percentage of inorganic constituents is characteristic of the green vegetables. This statement applies likewise to the calcium content. This alone, if there were no other reasons, would warrant a consideration of these materials as adjuvants to the dietary of the growing individual. We noted by comparative qualitative tests that the green foods had a preponderance of iron over the other vegetables. Their value as a source of iron cannot be overlooked when it is remembered that a quart of milk, one of the most valuable foods, contains only 1 or 2 mg. of this element. The last column of the table shows the calcium in percentage of the total inorganic content of the vegetables.

LOSSES BY COOKING AND DRYING

Attention is called to the possible loss of inorganic elements in the method of cooking vegetables. Snyder[11] studied the loss in cooking potatoes, carrots and cabbage under various conditions. Using ordinary methods of cooking, he showed that there was a decided loss in the inorganic constituents, as well as other components, in some instances as much as 50 per cent. Wardall[12] has estimated the loss in carbohydrates in preparing "thrice washed" vegetables for diabetics. Most recently Courtney, Fales and Bartlett called attention to the loss in minerals, by boiling, in preparing vegetables for children. They recommend the steaming of foods.

As is shown in the table, the "riced" potato contained a smaller amount of inorganic components, particularly calcium, than the other potato. This may be due either to the soil in which they were grown or to the method of preparation for drying. These "riced" tubers were steamed before drying to destroy the enzymes which cause the raw potato to darken when exposed to the air. The calcium content of the potato is very low, and to remove any of it in the preparation for drying is a serious objection. This fact must be borne in mind if potatoes are to be dried extensively in this country. With our material there was only a slight darkening when the time between slicing and exposure to radiator heat was reduced to a minimum. In fact, the darkening was so slight that it could not be detected after the dried product was ground.

The physiologic importance of calcium in the feeding of growing organisms is now universally recognized. No other food supplies as much lime as milk. Some of the vegetables here analyzed, if fed in conjunction with milk or other foods, as the cereals, which are decidedly lacking in lime, will increase the available lime in the diet. There is a paucity of studies on the physiologic value of calcium in vegetables. From investigations conducted in this laboratory during the past year, the indications are that for at least two vegetables, spinach and carrots, the available lime is not as well utilized as that from milk or lime salts. Courtney, Fales and Bartlett indicate that in their experience one child, somewhat rachitic, showed an improved mineral balance on the addition of spinach to its dietary. The analyses here reported indicate the amount of lime present in some vegetables, which might become desirable as supplementary sources of calcium.



Calcium and nitrogen content of fresh and of dried vegetables: heavy lines, percentage content of calcium or nitrogen in the fresh vegetable; light lines, concentration of these elements in the same products dried.

SUMMARY

The quantity of water lost by the foods dried in this series is in accord with the values reported in Atwater and Bryant's analyses. The vegetables here studied contained from 71 to 97 per cent. of water.

In the case of some of the vegetables, the nitrogen content in terms of the dried product is in striking contrast with that of the original material, owing to the large losses of water.

Some of the materials are possible, valuable and hitherto unappreciated sources of lime. The calcium

11. Snyder, H.: Bull. 43, O. E. S., U. S. Dept. Agr., 1897.
12. Wardall, Ruth A.: Vegetable Foods for the Diabetic, THE JOURNAL A. M. A., Dec. 1, 1917, p. 1859.

statistics here reported are in accord with the comparable figures for such of these materials as Sherman and Forbes have analyzed.

The high calcium content of the green vegetables in contrast with that of the tubers and roots is very striking.

There may be a loss of inorganic constituents, particularly calcium, in the cooking of foods and in the preparation of some of them for drying.

INTRATRACHEAL ANESTHETIC MACHINE *

A. W. ADSON, M.D.
AND
G. G. LITTLE, M.E.
ROCHESTER, MINN.

In neurologic surgery it frequently becomes necessary to employ an intratracheal anesthetic, particularly in work on the cerebellum and the brain stem, when a patient may have respiratory difficulty that may be relieved by the administration of plenty of pure air under slight pressure. There are many intratracheal anesthetic machines in use, some of which are used very successfully, but the general tendency has been to make them too complicated. In view of this fact, it seemed permissible to construct a machine that would be efficient yet simple and easy to manipulate.

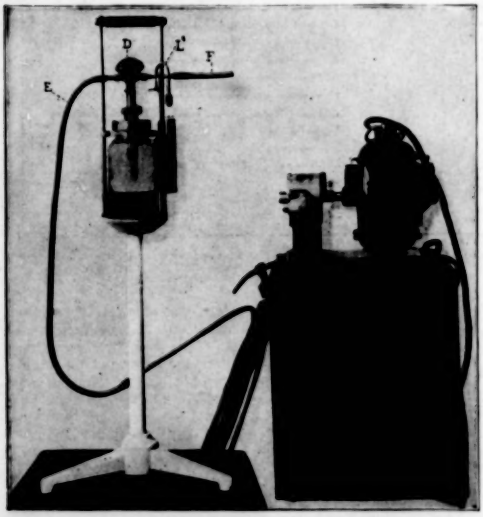


Fig. 1.—Intratracheal anesthetizing machine.

The one herein described has been constructed to conform to three principles, as follows:

1. *Constant Flow of Air.*—A constant flow of air maintained and controlled so that pure air alone, or any degree of ether saturation, may be given (Fig. 2). This is accomplished by diverting the air current through valve *C* from *E* to *F*. If pure air is desired, the valve is thrown open to send the air direct from *E* to *F* without entering the ether chamber. If ether is desired, part of the air current is forced through tube *N* on the ether surface, where it becomes saturated with ether and escapes through tube *B* to tubes *C* and *F*.

2. *Ether Tension.*—Ether tension is kept constant by the lowering or raising of tubes *B* and *N*.

3. *Constant Air Pressure.*—A safety valve prevents too great pressure within the lungs. This is accomplished by connecting the air current with a mercury manometer, *L*, *G* and *H*.

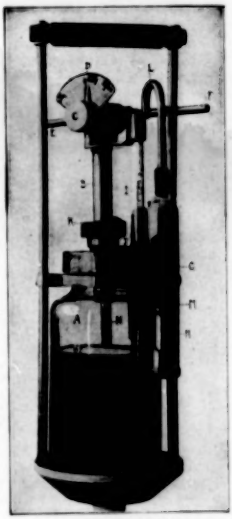


Fig. 2.—Upper end of etherizing stand.

THE APPARATUS

The apparatus consists of a motor directly connected to a small rotary blower mounted on a suitable base; a coil of flexible metal tubing to convey the air to the controlling valve, and a three-point foot piece with a column supporting a base plate, to which is secured a 24 ounce glass bottle by means of a yoke-clamp gripping the two side rods that are threaded into the base plate and secured at the top by the hand bar (Fig. 1). In Figure 2 the upper end of the etherizing stand is shown enlarged, and the working parts are numbered as follows:

The 24 ounce bottle, *A*, is supplied with a metal cap cemented to its top and having two openings. The opening in front has a knurled screw collar, *K*, designed to clamp and hold tube *B* at any desired vertical position. The other opening has a knurled screw stopper which shows above *K* and to the right of *B*, and which is used for filling the bottle with ether.

The lower end of the tube *B* may be seen just below the neck of the bottle, and the upper end supports valve *C* and the mercury column *H*. The valve is controlled by the knurled knob *C*, to which the indicator point is secured, while dial *D* is fastened to the valve body, and has a point at the left marked "All Air," a point at the top marked "Half A and E" (half air and half ether), and a point at the right marked "All Ether." Tube *E* at the left of the valve conducts the air into the valve, where it is directed downward into the bottle or straight out through the tube *F* at the right of the valve. Tube *G* is a glass extension of the metal tube, *L*, and directs the flow of air against the pressure of the mercury, *H*, which is in a glass retainer held in a metal protecting case. The intratracheal pressure is increased as the column of mercury is raised about the glass tube, *G*. A flat metal arm extends out to the right from the top of tube *B*, and supports a rod to which is secured a pinion having a knurled knob, *J*. The pinion engages a toothed rack secured to the upper and lower sleeves around the rod, the sleeves being part of the protecting case of the mercury column. At *I* a millimeter scale is seen and reads, beginning at the bottom, 0, 5, 11, 15, and 20 mm. A small quantity of cotton is packed loosely around tube *G* at the top of the glass retainer to prevent the

* From the Mayo Clinic.

mercury being blown out and wasted, in case obstruction should occur in the escape of air from the lungs. There is a graduation in ounces engraved on the side of the bottle, numbered, beginning at the top, to the right, 0 to 15, making a 16 ounce capacity as seen at the left. Figure 3 shows the valve in two positions exposing the air ports *A* and *B*. When the machine is in operation, the air passes into tube *E* and fills port *B*, flowing out through tube *F* when the pointer is at "All Air." The surfaces, *X*, *X*, of the valve at each side of port *B* cover the openings leading down into tube *B* and the small tube *N* inside *B*, preventing air from getting into the bottle. By turning the valve so that the pointer is at "All Ether," the end, *C*, of port *B* is directly over the opening leading down into the small tube inside tube *B*, while the end, *D*, of port *A* is over the opening leading to tube *B*. The air then passes from *E* into port *B*, around to the cell, *C*, down the small tube *N* inside tube *B* and over the surface of the ether. The gas then rises through tube *B* into port *A* at *D*, thence to *A* and out through tube *F* and to the patient. Port *B* is extended toward *A* at *E*, leaving a thin wall between, so that as the valve is turned from "All Air" to "All Ether" there will be a constant flow of air.

To use this apparatus, the motor and blower should be placed in some cool, easily accessible place where a supply of pure air can be drawn into the pump. The starting and stopping switch should be within reach of the operating room,

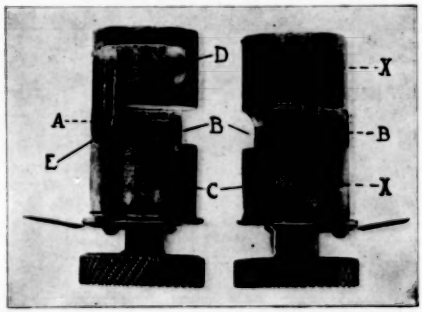


Fig. 3.—Valve.

as should also the air pipe line from the pump. The air connection leading into the room should be about 6 inches above the floor, so that the flexible metal tube used to connect the controlling valve with the pump may lie on the floor out of the way. When the anesthetic is to be started, the rubber connection of the flexible air line is secured to tube *E*, and the intratracheal tubing to tube *F*. Valve *C* is adjusted to control the amount of ether desired. The mercury column is raised to 10 mm. for adults and 7 mm. for children. The bottle is filled with ether to 0, and tube *N* is adjusted to a level 2 cm. above the ether.

The patient to be anesthetized is given morphin and atropin one hour previously. Before intubation is attempted, it is important to have the patient deeply anesthetized, after which the intratracheal catheter is inserted and connected with the running machine. Air is used first, then, gradually, the ether.

Fasting and Work.—A fasting man may have considerable power. The popular idea of the necessity of meat for a laboring man may be epitomized in the statement: a strong man can eat more meat than a weak one, hence meat makes a man strong. The proposition is evidently absurd.—Lusk, Food in War Time.

THE POTENCY OF ANTIPNEUMOCOCCIC SERUM

N. E. WAYSON, M.D.
Assistant Surgeon, U. S. Public Health Service
AND
G. W. McCOY, M.D.
Director, Hygienic Laboratory, U. S. Public Health Service
WASHINGTON, D. C.

Antipneumococcic serum, as developed by Neufeld, was not regarded as entirely satisfactory as a therapeutic agent. Cole and his co-workers renewed the interest in this serum, however, by their work on the differentiation of types of pneumococci and the application of the specific univalent serums.

Clinical evidence has since accumulated which tends to encourage the use of Cole's Type I serum in cases in which the corresponding type of infecting organism has been determined.

The official control of this product by protection tests has thus far been confined to serum produced by the immunization of horses against Type I pneumococci.

Polyvalent serums are required to show the same protective action against Type I organisms as is the specific type serum.

The evidences of the manufacturers' protection tests are accepted for the potency of serums made by immunizing animals against pneumococci of Types II and III.

The present method of testing the potency of antipneumococcic serum was devised by Neufeld. Cole modified the Neufeld technic in certain details, chiefly in the method of the injection of the animals.

It seemed desirable, by reason of the irregularities encountered in the application of this method of testing, that all lots of serum claimed to be effective against Type I pneumococci, offered for sale in interstate traffic, should be examined at one laboratory; further that the manufacturers' tests should be confirmed by an independent official agency, responsible for making and interpreting the tests, until the limitations of the method were studied.

Acting on a recommendation to this effect, the secretary of the treasury ordered the testing to be executed at the Hygienic Laboratory. Since this order has been in effect there have been examined at this laboratory 104 lots of serum made by various laboratories, representing both commercial and noncommercial manufacturers. This involved a total of 125 tests, as certain specimens were tested more than once.

A serum kindly furnished by Dr. Cole was preserved at a low temperature, and was used as a basis of comparison in each test for potency. In a survey of the results of tests on these serums, a number of facts have been noted which it is thought will be of interest to those concerned in the production, testing and therapeutic application of the serum.

The animal test was executed as Neufeld devised it, by inoculating a series of mice with a fixed dose of serum, and varying the dose of culture, with the exception that both the serum and the culture were injected into the peritoneal cavity in accordance with Cole's modification. A shorter time than Neufeld allowed intervened between the injection of the serum and of the culture. Neufeld considered a serum sufficiently active which in a dose of 0.2 c.c. would protect

mice of from 15 to 20 gm. weight against 0.1 c.c. of an 18 to 24 hour old broth culture, of which 0.000001 c.c. was fatal to control mice of similar weights.

SUMMARY *

	Separate Methods		Simultaneous Methods	
	Number of Tests	Percentage	Number of Tests	Percentage
Tests in which commercial serums failed to protect as many mice as noncommercial serums	13	12	0	0
Tests in which commercial serums protected as many mice as noncommercial serums	72	68	4	36
Tests in which commercial serums protected more mice than noncommercial serums	21	20	7	64
Total tests	106	100	11	100

* This table does not include seven retests following rejection of serums on original tests.

In carrying out the test, two mice were given a dose of 0.2 c.c. of the culture, two mice 0.1 c.c., and one mouse 0.01 c.c., all previously or simultaneously inoculated with 0.2 c.c. of the serum.

PROTOCOL 1.—TESTS SHOWING IRREGULARITIES IN GROWTH OR VIRULENCE OF CULTURE

Serum, 0.2 C.c.	Cultures				
	0.2 C.c.		0.1 C.c.		0.01 C.c.
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A
A	36	36	S	S	S
1	24	36	S	S	S
2	S	S	S	S	S
3	S	S	S	S	S

No Serum	Cultures					
	0.0001 C.c.		0.00001 C.c.		0.000001 C.c.	
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
	S	S	24	S	36	S

Throughout all the tests the doses of all serums used was 0.2 c.c. The culture used was grown for from eighteen to twenty-four hours in plain broth to which a few drops of the blood of an infected mouse was added. The hours of survival of the mice after injection are indicated in the protocols by a number, except

PROTOCOL 2.—TESTS SHOWING IRREGULARITIES IN GROWTH OR VIRULENCE OF CULTURE

Serum, 0.2 C.c.	Cultures				
	0.2 C.c.		0.1 C.c.		0.01 C.c.
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A
A	30	S	72	S	S
1	72	S	72	S	S
2	30	40	48	30	S
3	24	72	S	S	S
4	12	30	72	S	S

No Serum	Cultures					
	0.0001 C.c.		0.00001 C.c.		0.000001 C.c.	
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
	24	30	28	36	28	40

survival for ninety-six hours or more, which is indicated by an S. It was found that survival for ninety-six hours was adequate for test purposes. A parenthesized number indicates the hours of survival of a mouse which was found to be infected with a contaminating organism, when sectioned.

All mice were examined postmortem, to avoid the confusion of irregularities due to death by infection with extraneous organisms, the commonest of which is the bacillus of mouse typhoid.

It is not surprising that variations occur when we consider that a culture which necessarily varies in virulence and density must be employed. The most striking irregularity in the results of the tests is the survival of one or both of the mice receiving the larger dose of culture, while one or both of those inoculated with a smaller dose succumb.

Thus in 125 tests of serums other than the serum used for comparison, twelve, or 9.6 per cent., showed this irregularity; and in nineteen tests of the serum used for comparison, four, or 21.1 per cent., were similarly irregular.

PROTOCOL 3.—TESTS SHOWING IRREGULARITIES IN GROWTH OR VIRULENCE OF CULTURE

Serum, 0.2 C.c.	Cultures				
	0.2 C.c.		0.1 C.c.		0.01 C.c.
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A
A	20	17	17	29	S
1	20	20	14	S	S
2	20	12	20	20	S
3	10	19	19	28	S
4	48	29	20	24	S

No Serum	Cultures					
	0.0001 C.c.		0.00001 C.c.		0.000001 C.c.	
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
	45	45	S	S	S	S

PROTOCOL 4.—TESTS MADE ONE MONTH LATER

Serum, 0.2 C.c.	Cultures				
	0.2 C.c.		0.1 C.c.		0.01 C.c.
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A
A	24	27	29	S	S
B	24	27	40	S	S
1	18	18	24	S	S
2	72	27	29	S	S
3	S	S	S	S	S
4	S	S	24	S	S
5	24	48	29	72	S
6	24	S	S	S	S

No Serum	Cultures					
	0.0001 C.c.		0.00001 C.c.		0.000001 C.c.	
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
	24	28	27	27	36	38

IRREGULARITIES IN KILLING POWER OF CULTURE AND IN PROTECTION AFFORDED BY SERUM [1]

Protocols 1, 2 and 3 indicate the irregularities which occur in the growth or in the virulence of the culture. These tests were made each from a week to ten days later than the previous one, and the culture had been passed through one or more mice during the interval. They also indicate the irregularity of the

1. The lettered serums, A, B, etc., are those of producers not engaged in interstate sale of serum, and the numbered serums, 1, 2, 3, 4, are of those engaged in the interstate sale. The numbers refer to different specimens of serum in each test.

protection afforded even by the same serum, A, at different tests.

Protocols 4 and 5 are of tests made respectively one and three months later, and show similar irregularities in the protection afforded.

Among twenty-one series of tests it was found that Serum A failed eight times, or 38.1 per cent., to protect one mouse against 0.1 c.c. of the culture, and failed to protect either mouse five times, or 23.8 per cent.

PROTOCOL 5.—TESTS MADE THREE MONTHS LATER

Serum, 0.2 C.c.	Cultures					
	0.1 C.c.			0.01 C.c.		
	Mouse A	Mouse B	Mouse C	Mouse A	Mouse B	Mouse C
A	22	23	44	(32)	S	S
1	20	(35)	S	S	S	S
2	15	23	24	S	S	S
3	22	S	S	S	S	S
4	S	S	S	S	S	S

No Serum	Cultures							
	0.00001 C.c.		0.000001 C.c.		0.0000001 C.c.		0.00000001 C.c.	
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
	28	28	34	34	40	39	33	47

As it was considered possible that the method of injecting the serum previous to the culture might be responsible for irregularities, the method of injecting simultaneously after mixing in the syringe was tried with the results shown in Protocols 6 and 7.

PROTOCOL 6.—TESTS MADE BY SIMULTANEOUS INJECTIONS AFTER MIXING IN SYRINGE

Serum 0.2 C.c.	Cultures						
	0.2 C.c.		0.1 C.c.		0.01 C.c.		
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A		
A	21	21	23	S	S		
B	14	14	26	S	S		
C	18	21	21	29	S		
D	18	23	21	23	S		Separate injection
1	21	23	26	37	S		
2	17	S	73	S	S		
3	18	46	17	S	41		
4	17	54	90	S	S		
A	21	S	26	49	S		
B	17	26	S	S	S		
C	17	S	17	S	S		
D	49	S	23	23	S		Simultaneous injection
1	15	S	30	S	S		
2	18	S	41	S	S		
3	21	23	S	S	S		
4	(28)	S	34	S	S		

No Serum	Cultures					
	0.0001 C.c.		0.00001 C.c.		0.000001 C.c.	
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
	30	30	21	30	34	36

Protocol 7 shows the rearrangement of the test as it has been carried out during the later tests. Three mice were put on each of two doses, 0.1 c.c. and 0.01 c.c. of the culture. This procedure was adopted, since for test purposes it was decided that the increment between the 0.1 and 0.2 c.c. doses was too small to be of practical value.

It is apparent from a survey of the Protocols 1 to 7 that there is little preference between serums produced by institutions engaged in the interstate sale of it and those which do not make the serum on a commercial basis.

That it may be appreciated that there is no inherent difficulty in the production of this serum on a commercial basis, a summary is presented.

From these results it would appear, further, that the method of testing adopted by the Hygienic Laboratory results in a greater percentage of failures of serums to pass satisfactorily, but that the irregularities are inherent in the test, and not due to slight modifications.

PROTOCOL 7.—TESTS AS REARRANGED

Serum 0.2 C.c.	Cultures						
	0.1 C.c.			0.01 C.c.			
	Mouse A	Mouse B	Mouse C	Mouse A	Mouse B	Mouse C	
A	25	35	46	(58)	S	S	
1	16	88	S	S	S	S	
2	21	23	S	S	S	S	Separate injection
3	19	46	S	S	S	S	
4	76	S	S	S	S	S	
A	22	23	44	(52)	S	S	
1	20	(55)	S	S	S	S	
2	15	22	24	S	S	S	Simultaneous injection
3	22	S	S	S	S	S	
4	S	S	S	S	S	S	

No Serum	Cultures							
	0.00001 C.c.		0.000001 C.c.		0.0000001 C.c.		0.00000001 C.c.	
	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
	28	28	34	34	40	39	33	47

CONCLUSIONS

While it would seem that the mouse test is irregular in its results, it is believed that it affords in its present state a valuable measure of potency of antipneumococcic serum when properly controlled.

The lack of influence of preservative in the commercial serum was shown by the test recorded in Protocol 8 in which both preserved and nonpreserved serum of the same bleeding was used.

PROTOCOL 8.—TESTS WITH PRESERVED AND NONPRESERVED SERUM

	Serum 0.2 C.c.	Cultures				
		0.2 C.c.		0.1 C.c.		0.01 C.c.
		Mouse A	Mouse B	Mouse A	Mouse B	Mouse A
0.15% trieresol....	A	21	S	26	49	S
No preservative...	1	15	S	30	S	S
0.2% 3-eresols.....	1a	18	S	41	S	S
No preservative...	2	71	23	S	S	S
0.25% tricresol....	2a	(28)	S	34	S	S
No preservative...	B	17	26	S	S	S
0.15% tricresol....	Ba	17	S	17	S	S
No pres. stated....	C	40	S	23	23	S

	No Serum	Cultures					
		0.0001 C.c.		0.00001 C.c.		0.000001 C.c.	
		Mouse A	Mouse B	Mouse A	Mouse B	Mouse A	Mouse B
		30	30	21	30	34	36

The serum now available in the market is of as high a potency as that produced by laboratories not engaged in the sale of this product.

A Morgue Nuisance.—The opening of a morgue and undertaking establishment in a residence district, to the depreciation of the value of neighboring property, it is held in the Michigan case of *Saier* v. *Joy*, L. R. A. 1918 A, 825, may be enjoined as a nuisance.

FEEDING IN HYPEREMESIS GRAVIDARUM

CHARLES S. BACON, Ph.B., M.D.
Professor of Obstetrics, University of Illinois College of Medicine, and Chicago Policlinic
CHICAGO

A review of the work done on the etiology of hyperemesis gravidarum shows that there is probably some kind of a toxic element in all cases which disturbs the vasomotor system and renders more sensitive the vomiting center. A neurotic factor is generally present as well as peripheral irritation from the uterus. The latter generally disappears when the uterus rises out of the pelvis. The vomiting is therefore of the reflex type. A toxic element that causes central vomiting may sometimes exist, but neither laboratory nor clinical proof has been adduced. Serious injuries to the liver or kidneys or other organs may result from starvation and acidosis. The danger to these organs resulting from inanition or toxemia or both can be fairly well estimated by the relation of the ammonia nitrogen to the total nitrogen. The determination must be made by methods that are really quantitative, preferably the Kjeldahl for the total nitrogen and the Folin test for the ammonia.

In treatment, therefore, the important thing is to feed the patient properly, beginning radical treatment early. Hospitalization and good nursing, and keeping the patient in bed, are necessary. On account of the great importance of the neurotic factor, suggestive therapeutics should be employed. At first nothing should be given by the mouth, not even water.

We have three methods of nonoral feeding at our disposal: the subcutaneous, the intravenous and the rectal, the relative efficiency and practicability of which must be considered. The practicability of a method includes its safety, its economy, the patient's freedom from pain, etc.

The principle that should guide us in nonoral feeding is to give all the necessary food elements if possible. If it is not possible to give a sufficient quantity of nitrogenous foods, we should give energy foods which save the tissues.

By the subcutaneous method, water, the salts, glucose, soluble vitamins and sedatives may be given. The method is not suited to the administration of alcohol, and is more painful than the rectal method, and should generally be replaced by the latter except in emergency cases.

By intravenous feeding, all substances may be administered that are given by the subcutaneous method. Woodyatt, Sansum and Wilder have shown the importance of regulating the velocity of the flow of the solution and have found that 0.85 gm. of glucose per kilogram and hour can be given without causing intolerance. At this rate about 40 gm. of glucose could be given every hour to a woman weighing 50 kg., and in six hours about 250 gm., which would give about 1,000 calories of energy. The method is valuable in emergency when available. It requires a special apparatus and technic and is hardly practicable for ordinary use.

Rectal feeding remains the most practicable and, when properly given, is efficient. By this method all essential food elements can be supplied, such as water, salts, glucose, amino-acids and vitamins. The deficiency in nitrogenous foods can be made up in part by giving an excess of glucose and by alcohol. Sedatives, especially sodium bromid, can be added as needed.

Because there is no digestion in the rectum or colon, no attempt should be made to give undigested proteins. Amino-acids and peptones dialyzed from artificially digested meat or milk may be given. Because sugar and starch digestion does not take place in the colon, carbohydrates should be given in the form of a monosaccharid, preferably glucose, which is absorbed without change. As the absorption of fats is doubtful, they should be omitted.

Solutions of vitamins from the pancreas or other sources should always be added if the feeding is to be continued for a considerable period of time. I am indebted to Prof. William A. Welker of the University of Illinois Medical School for this most important addition to the feeding in hyperemesis gravidarum. He has suggested the possibility that the toxic element in this affection may be a deficiency in vitamins caused by the increased demand of the rapidly growing embryo, and has suggested some experimental studies to discover the truth of this hypothesis. The fact that peripheral neuritis gravidarum frequently accompanies hyperemesis gravidarum is suggestive, as polyneuritis is the most important finding in beriberi, the type of disease due to deficiency in the accessory foods.

An energy food of great importance in rectal feeding is alcohol. According to the valuable studies of Neumann, alcohol is more readily utilized by the tissues than the other energy foods, carbohydrates and fats, even when these are present in large amounts, and its administration leads to the same economy of protein as the ordinary non-nitrogenous constituents of the dietary. As alcohol is more easily absorbed than glucose and as it helps to prevent fermentation in the colon, it proves of great value when given in proper amounts and concentration. If given in excessive quantities or too great concentration, it may be eliminated unchanged and may also injure cell tissue. If given in not more than a 5 per cent. solution and not to exceed 100 gm. a day, it is practically all consumed and harmless.

The great importance of calcium makes it desirable to add a calcium salt to the injection. The constant acidosis indicates the addition of sodium bicarbonate. To diminish the central reflexes, sodium bromid may be substituted for the basic salt sodium chlorid in sufficient amounts, generally from 3 to 4 gm. per liter (quart). There is no reason for giving a solution of salts of concentration to make an isotonic solution. It is probably better to restrict the salts to 7 per thousand.

The solution should be at body temperature. This cannot be secured by heating the solution in the irrigator can and letting it drop through an unwarmed tube. It is necessary to warm the tube near the distal end, that is, just before it is joined to the rectal tube. This can be done by means of hot sandbags. The rate of flow of one drop a second, giving 500 c.c. in two hours, is nearly always tolerated, if the rectum and colon have been properly prepared.

A large enema of at least 1 liter should be given every day to remove particles that continue to come down from the small intestine and also substances that may be excreted from the mucous membrane of the colon. This enema also should be a hypotonic solution, for example, 5 per thousand of sodium chlorid, in order that some water may be absorbed

from it. A small amount of alcohol, 1 per cent., may be added in the hope that a small amount of nutriment may be supplied in this way.

The cleansing enema may be given early in the morning, at 7 or 8 a. m. Then the nutrient enemas would start at about 9 a. m., 2 p. m. and 7 p. m. Sometimes it will be found desirable to add 10 drops of tincture of opium to the evening enema.

The composition of the rectal feedings will have about the following proportions: glucose, 50; alcohol, 50; calcium chlorid, 0.3; sodium bicarbonate, 3; sodium chlorid or bromid, 4; vitamin, as much as is sufficient; distilled water, enough to make 1,000. From 300 to 500 gm. are to be given three times a day. This mixture has an energy value of about 550 calories. If 1,500 c.c. are given each day, the patient will receive 825 calories. In two or three days the retching stops, the thirst disappears, and the patient is in a fairly comfortable condition. The great nitrogen loss is stopped and the total nitrogen output in the urine is often reduced to 3 gm. in twenty-four hours. The ratio of the ammonia nitrogen to the total nitrogen also falls, although it may still remain more than 20 per cent.

It now becomes a difficult task to determine when stomach feeding may begin. As a rule, it is better to be cautious than hasty. The returning appetite of the patient and her confidence in herself is at times a guide. If the pregnancy is approaching the fourteenth week and the uterus is raising out of the pelvis, the mental change is often remarkably sudden. Likewise in markedly neurotic patients, the cures are often sudden. Lavage of the stomach is frequently very desirable before beginning oral feeding. The foods best taken are generally some forms of milk, such as peptonized milk, malted milk and buttermilk. Egg albumin is added early. Rectal feedings are discontinued gradually and not until the stomach feeding is reestablished. Even when the patient has recovered completely, she should be kept under control until the sixteenth or the eighteenth week, as discouraging relapses are not uncommon.

Management along the lines indicated promises success in practically all cases in which patients are treated before inanition becomes extreme. Even in extreme cases by the help of subcutaneous feeding, cures may be effected. The great difficulty is generally in obtaining and keeping control of the patient, largely because of outside influence. In a patient under control, the induction of abortion is practically never required.

2156 Sedgwick Street.

Utilization of Lobsters as Food.—Another of our great aquatic resources that has suffered from the failure or refusal of the states to be guided by the teachings of zoology is the lobster. If the states had given heed to the elementary needs of the lobster as proclaimed by Herrick, instead of shaping their course so as to conform with the interests of those who for years have been profiteering at public expense, they could have made the lobster a staple, moderate-priced food for all time, whereas it has become such a rare and expensive article that the food administration might very properly place an embargo on its use as a wholly unjustifiable extravagance. One alleviating circumstance is that through the adoption of a system of artificial rearing devised by the zoologist Mead, the lobster supply in the waters of Rhode Island has been maintained better than in any other state.—Dr. H. M. Smith, "Contributions of Zoology to Human Welfare," *Science*, March 29, 1918.

A STUDY OF FOUR HUNDRED POSTMORTEM WASSERMANN REACTIONS

SUPPLEMENTARY REPORT *

STUART GRAVES, M.D.
Acting Assistant Surgeon, United States Public Health Service
LOUISVILLE, KY.

The bibliography of the subject of postmortem Wassermann tests was covered in an article[1] published in 1916. No further study of the subject was published in 1917 by any one. In the first article the reasons for doing postmortem complement fixation tests for syphilis were discussed and the technic was described in detail. The results of 290 tests were analyzed and the following conclusions deduced:

1. Postmortem Wassermann reactions confirmed antemortem reactions in 95 per cent. of thirty-eight control cases. Positives were confirmed in serum six hours postmortem and negatives in serum twenty-two hours postmortem.

2. In 90.4 per cent. of cases showing postmortem anatomic lesions of syphilis or presenting evidence of syphilis in their histories, the serums postmortem gave positive Wassermann reactions.

3. The fact that positive postmortem reactions appeared in thirty-eight cases, which did not present postmortem lesions or historic evidence of syphilis and in which death was due to acute infections, tuberculosis or malignant tumors, cannot be interpreted to mean that the reaction was caused by those diseases because, in the first place, the histories and necropsies in those cases were not nearly complete enough to rule out syphilis, and, in the second place, because serums from ninety-four patients who died of acute infections, tuberculosis or malignant tumors, examined under similar conditions, gave negative reactions.

4. Only 7 per cent. of 282 cases showed negative reactions in the presence of anatomic lesions (aneurysms) characteristic of syphilis.

5. The reactions conformed to the anatomic and historical evidence in 84 per cent. of the cases.

6. The fact that only eight, or 3 per cent., of the serums were anticomplementary indicates that the serums were in good condition.

7. The average percentage of specific reactions was almost as high postmortem as would be expected antemortem.

8. The positive reaction appeared in twice as many males as females, in three times as many negroes as whites, and in white females in only 4.3 per cent. of the cases examined.

9. The Wassermann reaction, performed on postmortem blood according to the methods followed in this investigation, is a reliable aid to the diagnosis of syphilis.

The original series of tests has been increased to 400, and the number of postmortem tests controlled with antemortem tests has been about doubled. They form a part of more than 6,000 tests done in the laboratory in the last three and a half years. These 400 tests have been studied and the results set forth in Table 1.

In the first series, we did not take into consideration in Class 3 bloods from which serums could not be separated or which were hemolyzed or otherwise unfit for use, but only those which, when used, proved anticomplementary. In the last series we considered all bloods taken and found unfit for use from any cause, although only three were anticomplementary. In the 6,000 Wassermann reactions, twenty-eight, or

* From the Pathological Laboratory of the University of Louisville Medical Department and of the Louisville City Hospital.

1. Graves, Stuart: A Study of Two Hundred and Ninety Postmortem Wassermann Reactions, Jour. Immunol., 1916, 2, 53.

0.46 + per cent., have been found anticomplementary and thirty-five, or 0.58 + per cent., have been found hemolyzed, coagulated or otherwise unfit for use. Our original conclusion is therefore strengthened that, if the postmortem serum appears all right and does not prove anticomplementary, it is safe for use. Confidence in the general results is further based on the results in Classes 1 and 2, in which the reactions were as might be expected from the anatomic findings or histories in 304 cases, or 76 per cent. In only ten of 400 were negative reactions found to contrast with apparent syphilitic anatomic lesions or positive evidence of syphilis in the histories. If we find 2.5 per cent. of negative reactions in living patients known to have syphilis, shall we argue that therefore the reaction is of no value? In the first series, all the patients of this class had aneurysms. Of the three in this series, one patient presented no anatomic lesions of syphilis, but gave a vague history of a chancre ten years before, although his antemortem Wassermann reaction was only +. The second patient presented a coarsely lobulated, sclerosed liver with fanlike fibrous adhesions. His postmortem Wassermann reaction agreed with his antemortem negative reaction. The third case was that of another aneurysm. In this the postmortem reaction was ± and the antemortem reaction negative. In the analysis of these three cases, the anatomic and historic evidence is surely overbalanced by the practical agreement of the reactions before and after death. On first thought, it seems strange that in eight of ten cases in Class 4, each showed the presence of an aneurysm, but in twenty-five other cases of aneurysms the postmortem Wassermann reaction was positive.

TABLE 1.—RESULTS OF 400 POSTMORTEM TESTS

	First Series	Second Series	Total	Per Cent.
Class 1. Wassermann tests positive with apparent syphilitic anatomic lesions or positive evidence of syphilis in histories	76	28	104	26
Class 2. Wassermann tests negative with no apparent syphilitic anatomic lesions and no evidence of syphilis in histories	161	39	200	50
Class 3. Anticomplementary or otherwise unfit for use	8	14	22	5.5
Class 4. Wassermann tests negative with apparent syphilitic anatomic lesions or positive evidence of syphilis in histories	7	3	10	2.5
Class 5. Wassermann tests positive with no apparent syphilitic anatomic lesions and no evidence of syphilis in histories	38	26	64	16
	290	110	400	100

We now come to Class 5, embracing positive Wassermann reactions in cases that revealed no anatomic lesions that could be regarded as syphilitic and offered no positive evidence of syphilis in their histories. These have been classified as in the earlier article into three subdivisions.

Of the twenty-six cases in the second series in this class, five showed a ± reaction, two + and five ++, leaving only fourteen of 110 which showed positive +++ or ++++ reactions without evident anatomic or historic evidence of syphilis. Of the latter, three agree with antemortem Wassermann reactions, which is of greater importance than the apparently unwarranted positive reactions. This class has been analyzed in the first article and explained conclusively, it seems to us. Here we shall simply revise the table of race and sex, which speaks volumes to any one who has worked where negroes are numerous.

Against the reliability of the Wassermann test, both antemortem and postmortem, it has been argued that, because the reaction appears positive in cases in which syphilis is not objective or historical while various infectious lesions are obvious, these diseases must bring about changes in the blood that cause complement fixation. Would it not be more logical to conclude that deaths in these cases have resulted from the most common fatal diseases, such as pneumonia and tuberculosis, to say nothing of violence, in patients who were mostly ignorant or unfortunate, or in vicious colored persons who were simultaneously victims of early or late or treated syphilis? If the positive Wassermann reaction is to be attributed to pneumonia, or tuberculosis, or other infectious lesions, or to malignant tumors, because it appeared in patients who had died of those lesions, of what weight is that argument when it is shown that, of the 161 cases in this series which gave negative postmortem Wassermann reactions and, with the exception of the last two, presented no evidence of syphilis, 121 were negative in patients dying from the following diseases: lobar pneumonia, 34; pulmonary tuberculosis, 16; lobular pneumonia, 14; acute peritonitis, 13; acute nephritis, 6; carcinoma, 5; acute vegetative endocarditis, 4; generalized tuberculosis, 8; tuberculous enterocolitis, 2; pneumococcus meningitis, 2; streptococcus meningitis, 1; meningococcus meningitis, 1; empyema, 3; perihepatic abscess

TABLE 2.—CLASSIFICATION OF POSITIVE WASSERMANN TESTS WITH NO EVIDENCE OF SYPHILIS

A. Bodies sent by coroner to laboratory for necropsy. No history whatever. Examination often partially restricted to evident cause of death. No opportunity for antemortem physical examination.

Stabbed to death (Wassermann + and Wassermann ++ in two cases)	3
Cardiorenal (Wassermann + in one case)	3
Shot to death	2
Lobar pneumonia	2
Burned to death	1
Choked to death	1
Skull fractured	1
Generalized tuberculosis	1
Total	14

B. Patients admitted to hospital but coming to necropsy as coroner's cases because dying within twenty-four hours or without obvious cause. Little or no opportunity for history or physical examination.

Lobar pneumonia	4
Pulmonary tuberculosis	1
Generalized tuberculosis (Wassermann only +)	1
False elephantiasis of genitals	1
Burned to death	1
Stabbed to death	1
Traumatic septicemia	1
Shot to death	2
Acute pericarditis	1
Acute meningitis	3
Acute peritonitis	1
Typhoid	1
Total	18

C. Patients admitted to hospital. Necropsy permission from next of kin or friends or municipal authorities in cases of patients without relatives or friends.

Generalized tuberculosis	3
Lobar pneumonia (one only +)	2
Cardiorenal (one only +)	2
Acute appendicitis and peritonitis (only +)	1
Streptococcus meningitis (only ++)	1
Gangrene of intestine, intestinal obstruction	1
Acute pyelonephritis	1
Acute tubular nephritis (negro male, aged 20)	1
Shot to death	1
Carcinoma	1
Pulmonary tuberculosis	6
Lobular pneumonia	2
Ulcerative endocarditis	1
Strangulated hernia	1
Lymphoblastoma	2
Sclerosis of liver	1
Acute peritonitis	2
Hemorrhage following operation	1
Typhoid	1
Acute enterocolitis	1
Total	32

following gastric ulcer, 1; acute pericarditis, 4; brain tumor (not yet diagnosed), 1; hypernephroma, 1; lymphosarcoma, 1; pyonephrosis, 1; carcinoma with infectious nephritis and aneurysm of the aorta, 1; bilateral pneumonia and pericarditis with apparently syphilitic sclerosis of the liver, 1; and tuberculous

TABLE 3.—RACE AND SEX OF PATIENTS WITH POSITIVE WASSERMANN TESTS AND NO APPARENT SYPHILIS*

A. (C. O.) 14 cases	Negro	Male	7	13	Total negro males	25
		Female	6		Total negro females	21
	White	Male	1	1	Total white males	12
		Female	0		Total white females	6
B. (C. H.) 16 cases	Negro	Male	5	10	Total	64
		Female	5			
	White	Male	4	6		
		Female	2			
C. (H.) 34 cases	Negro	Male	13	23		
		Female	10			
	White	Male	7	11		
		Female	4			

* C. O. refers to coroner's cases in which persons died outside the hospital and were never admitted. C. H. refers to coroner's cases in which death occurred in the hospital. H refers to regularly admitted patients or cases in which there had been some opportunity to take a history or make a physical examination. In the first two classes there had been no such opportunity.

pneumonia with aneurysm of the aorta, 1? The answer may be applied to Class 5 in Table 1.

Of 378 reactions, 168, or 44 4-9 per cent. were positive. Of course it must be realized that these positive reactions were obtained in a charity hospital, and 73.1 per cent. were negroes. The distribution as to race and sex is shown in Table 4.

TABLE 4.—DISTRIBUTION OF POSITIVE SERUMS

	Male	Per Cent.	Female	Per Cent.	Total	Per Cent.
Negroes	73	43.4	50	29.7	123	73.1
White	34	20.2	11	6.5	45	26.7
Total	107	63.6	61	36.2	168	99.8

The results of previous investigators and ours are compared in Table 5.

TABLE 5.—COMPARISON OF RESULTS IN DIFFERENT SERIES

	Number of Cases	Positive	Per Cent.
Bruck	101	59	58.4
Seligman and Blume	100	28	28.0
Schlimpert	361	46	18.7
Lukesch	309	145	46.0
Simmonds	160	33	21.0
Lubarsch	262	55	21.0
Löhlein	149	42	28.2
Veszpremi	100	46	46.0
Krefting	115	43	37.0
Nauwerck and Weichert	206	57	28.0
Gruber	300	101	30.0
Moody, Jackson and LeCount	88	66	75.0
Graves	378	168	44.4
Total	2,629	889	33.8

Perhaps the strongest evidence in favor of the reliability of the postmortem Wassermann reaction is found in the controlled cases. In the first series, only two flat discrepancies were found in thirty-seven cases, a confirming average of 95 per cent. We have reason to believe that these discrepancies were not the fault of the reaction. In thirty-one additional controlled cases, not a single discrepancy of this type has been found. On the other hand, there are several cases which show interesting confirmation. In one case (A 16-214) the reaction was ± on the blood taken three days antemortem. Postmortem, it was the same, although absolutely no connection between the two was known when the latter test was done. When the serums are examined and the tests read, they are identified by numbers only. The same patient had had a +++ reaction followed by two doses of arsphenamin (salvarsan) and several injections of mercuric salicylate during his last six weeks. In another case (A 17-1) a +++ reaction on a spinal fluid postmortem reaction followed a +++ reaction on the blood antemortem. The necropsy showed gumma of the calvarium and meninges, in which the *Spirochaeta pallida* was demonstrated by the Levaditi method. Similar evidence could be multiplied. In sixty-eight control cases, then, only two contradictions are found, a confirming percentage of 97+. Any series of complement fixation tests, running over a period of three and a half years, with specimens submitted by a large number of different people under varying conditions, which offers a confirming percentage of more than 97, is surely reliable. A ++++ antemortem reaction confirmed a ++++ reaction sixty hours postmortem. The longest time postmortem after which a negative agreed with an antemortem negative in the same case was twenty-two hours.

Having proved in these two papers, as we believe, that Wassermann reactions on bloods taken and tested under the conditions described are reliable, we may ask, Of what value is a postmortem Wassermann reaction? It is of value, first, because it affords material help in the diagnosis of pathologic anatomy. Not even with such technic as devised by Warthin can one always decide with the microscope whether or not a given lesion had its origin in syphilis. It is impossible at the postmortem table to investigate the history of the unknown, latent syphilis or a fresh infection. If a serologic test will produce positive evidence, it frequently will solve a puzzling pathologic problem. Second, and possibly of greater importance, is the value of a reliable postmortem Wassermann reaction in medicolegal cases. Sometimes the question of syphilis is of far-reaching effect. It could conceivably be a deciding factor in the disposition of a large estate. Frequently, it arises in insurance cases.

It seems strange that a question of such importance has not been studied more. Only one other paper on the subject has been published in English. Leading textbooks on serology barely mention it. The prevailing opinion seems to have been that the postmortem Wassermann reaction was unreliable and without value. The opposite is proved in this investigation.

CONCLUSIONS

1. Postmortem reactions confirmed antemortem Wassermann reactions in 97 per cent. of sixty-eight controlled cases. A ++++ positive reaction, sixty hours postmortem, was confirmed by a ++++ antemortem in a case with anatomic and clinical evidence of syphilis. A negative Wassermann reaction on blood taken twenty-two hours postmortem was confirmed by a negative antemortem Wassermann reaction.

2. In 91.2 per cent. of cases showing anatomic lesions of syphilis and presenting evidence of syphilis in their histories, the serums postmortem gave positive Wassermann reactions.

3. The fact that only 2.5 per cent. of the serums were anticomplementary or otherwise unfit for use compares favorably with 1.14 per cent. similarly unfit in 6,000 antemortem specimens.

4. Only 2.6 per cent. of 378 cases showing anatomic evidence of syphilis gave negative Wassermann reactions.

5. The reactions conformed to the anatomic and historical evidence in 304 of 378 cases, or 80.4 per

cent., which is considerably lower than it would be if satisfactory histories and physical examinations were recorded in Class 5.

6. There is no logical reason for supposing that acute infections or malignant tumors cause positive Wassermann reactions.

7. The positive reaction appeared in 2.7 times as many negroes as whites, in 1.7 times as many males as females, and in only eleven white females, or 6.5 per cent.

8. The Wassermann reaction, made on postmortem blood according to the methods followed in this investigation, is practically as reliable a test for syphilis as when done antemortem, and is of great value in pathologic anatomy and in medicolegal cases.

THE AGGLUTINATION OF HUMAN RED BLOOD CORPUSCLES BY HORSE SERUM *

HERBERT U. WILLIAMS, M.D.
AND
HAROLD A. PATTERSON, M.D.
Professor of Pathology and Bacteriology, and Instructor in Bacteriology, respectively, University of Buffalo Department of Medicine
BUFFALO

This study seemed of interest to us because of the increasing use, frequently intravenous, of horse serum in large doses, chiefly in the form of curative serums for the infections. Agglutination of the red blood corpuscles of animals by the serum of animals of other species has been extensively studied, especially by Bordet. Some observers also allude to the agglutination of human red corpuscles by horse serum. We have tested nineteen specimens of serum and we have found that it frequently agglutinates human red corpuscles in the test tube.

Nine of these were normal horse serum, only one of them containing a preservative (phenol [carbolic acid] or a cresol). Ten were antistreptococcus serum, antidysentery serum, antipneumococcus serum or the like, purchased in the open market or issued by official laboratories, all presumably produced from the horse and usually containing a preservative. The specimens came from six different localities. Some of them were nearly a year old. We used some normal horse serums a few days after they had been taken from the animal.

We examined all serums for bacteria by streaking drops on agar slants, rejecting those that gave growths, with one exception. The latter was a serum that had been tested on a large number of blood specimens before its contamination was discovered. We have used the results in this case because they were entirely in accord with our other results, and the bacterial contamination was moderate. Neither the age of a serum nor the addition of a preservative seemed to influence agglutination. Some of the serums were tested with only two lots of blood corpuscles, others with more than thirty different specimens of blood. In all, samples of blood from about seventy-five different individuals were used. Some of these were tested with from five to seven different serums. Most of the samples were collected in 1 per cent. sodium citrate in physiologic sodium chlorid solution; all were centrifuged and washed three times.

Five tubes were used to test a given serum with one specimen of blood. They were so mixed that the tubes contained 1 c.c. of a 1 per cent. suspension of red cells in the sodium chlorid solution, and serum in the desired dilution. The final dilutions of serum used were 1:20, 1:50, 1:100 and 1:200. A control with no serum was kept in every case. The blood specimens were never more than forty-eight hours old, and usually were less than twenty-four hours old. After the blood cells and serum were mixed, the tubes were incubated at 36 C. for one hour, and then allowed to stand in the room for a few minutes. The results were estimated both by the appearance to the naked eye and by examination of drops under the microscope. It was observed that the longer the tubes stood after removal from the incubator to a lower temperature, the more distinct was the agglutination. Our readings were usually completed an hour after removal of the tubes from the incubator. The readings made with the naked eye, and those made under the microscope usually agreed well; but the microscope furnished somewhat the more delicate test. With strongly agglutinating serums, the red corpuscles settled into a firm mass that could be broken up with difficulty at the bottom of the tube. In such cases the microscope would show clumping of practically all the red corpuscles into large masses, of probably from twenty to a hundred or more cells in a clump. In other cases the clumps were smaller, and frequently there were many free cells between the clumps. Without exception, the intensity of agglutination was greatest in tubes in which the concentration of the serum in the mixture was highest.

RESULTS

Of the nineteen serums tested, twelve produced some agglutination of human red blood corpuscles in the test tube, while seven produced practically no agglutination, in dilutions of 1:20, the blood corpuscles being in 1 per cent. suspension, and the temperature not being exactly that of the body, but more or less below it.

The twelve positive serums agglutinated half or more of the samples of blood with which they were tested in 1:20 dilutions; and ten serums did the same in 1:50 dilutions.

Two serums agglutinated each two different specimens of blood in 1:200 dilutions; and one serum, in 1:500 dilution, showed slight but definite agglutination of each of two specimens of blood when the tubes had stood in the refrigerator over night. The last was an antimeningococcus serum, nine months old, smelling of phenol or a cresol, and sterile by culture test. Different specimens of blood cells showed considerable differences in the amount of agglutination when they were tested with the same serum. These differences, however, were distinctly less striking than those shown by different samples of serum with the same blood. It will be understood, of course, that the blood corpuscles in these test tube experiments were suspended in about 100 times as much fluid as when in normal blood, in order to demonstrate small amounts of agglutinin, if present.

Ottenberg,[1] working on isoagglutination in human beings, concluded that agglutination may fail to take place if the concentration of agglutinin in the serum is low, or if all the agglutinin is absorbed by an excess of red corpuscles. Using our most powerfully agglutinating serum (the antimeningococcus serum mentioned), with undiluted whole citrated blood, when a platinum loopful of blood was mixed with a loopful of the serum at room temperature, agglutination occurred at once and was nearly complete. When a loopful of serum diluted five times and several loopfuls of blood were used, well marked agglutination took place in from four to five minutes. It is doubtful, however, if such experiments imitate closely conditions in the living body.

Having noted in our tests that agglutination was usually most marked when the mixtures in the tubes

* Presented in abstract at the meeting of the American Association of Pathologists and Bacteriologists, March 29, 1918.

1. Ottenberg, R.: Jour. Exper. Med., 1911, 13, 425.

were allowed to stand for some time at room temperature, we made our readings throughout with this fact in view, in the hope of better detecting small amounts of agglutinin. We varied our original test by keeping the serum and the 1 per cent. suspension of red corpuscles, and the mixtures of them after they were prepared, in a water bath at 37 C.; and a single dilution of the serum of 1:20 was used. Six serums that had previously been found to have little or no agglutinating power gave practically the same result as before. Of three serums that had shown decided agglutination by the original technic, two gave well marked agglutination in 1:20 dilution after one and one-half hours at a temperature of 37 C. In the third serum, which was the antimeningococcus serum mentioned already as having marked agglutinating power, the result was startling. In the 1:20 dilution, no agglutination was visible after six hours in the water bath at 37 C. but agglutination became marked after the same tube had stood at room temperature about half an hour. The possibility that temperature might be an important factor in such experiments was suggested to us by the experience of Rous and Robertson,[2] who state that in rabbits repeatedly transfused with rabbit blood, agglutinins may develop, but agglutination of the rabbit's red corpuscles appears only at temperatures below 35 or 36 C., a fact which was determined by observations outside the body.

VALUE OF THE EXPERIMENTS

There are probably other factors also that make the application of test tube experiments to the living body of uncertain significance. Furthermore, in those human cases in which the administration of serum may be practiced, there is usually a disturbance of some of the functions, especially of the circulation, and frequently an alteration of body temperature from normal. Our problem is therefore one of great complexity.

An enormous amount of work has been done in trying the effect of alien serums on living laboratory animals. Among a multitude of investigators, certain observers assert that the agglutinating action of an alien serum for red blood cells may be the cause of an animal's death; while others contend that death is probably due to other properties of the serum.[3]

As far as we have examined the evidence, it seems to us inconclusive. Some cases of death after transfusion from man to man have been reported, in which death was probably due to agglutination of the red blood corpuscles.[4]

Our own experiments on animals with injections of normal foreign blood serum have given results that were not convincing. We have also immunized guinea-pigs by successive injections of washed rabbit red blood cells. The serum of these guinea-pigs became agglutinative and hemolytic for rabbit red cells. Heating the serum destroyed its hemolytic but not its agglutinative power, in dilutions of about 1:500. Rabbits, on receiving the heated guinea-pig immune serum intravenously, in doses of from 4 to 8 c.c. per kilogram, died in a few hours or over night in about half the experiments. The dilatation of the right heart and of the veins in general, and the numerous masses of agglutinated red corpuscles found in the vessels, made a very striking picture. Decolorized red corpuscles and staining of the blood serum, however, together with a dark color in the urine, were also present, giving clear evidence that hemolysis had taken place. Therefore, like other observers, we have not been able to exclude the possible action of a toxic substance in our experiments.

One of our objects in reporting our observations is to give force to the suggestion that in human cases that result fatally, in which large injections of serum have been given, the possibility of agglutination of red corpuscles should be considered at necropsy; and in suitable cases blood examinations might be made during life. Also if normal horse serum or an immune serum is to be used in large doses, and especially by intravenous injection, a safe and simple precaution would be for the investigator to take a little of the horse's blood, just before the final bleeding, and test the serum for agglutinating power with a number of specimens of human blood, rejecting any horse whose serum had distinct agglutinating power. In the case of horses to be used for making immune serums, such a test would, of course, be performed before beginning immunization.

2. Rous, Peyton, and Robertson, O. H.: Jour. Exper. Med., 1918, **27**, 509.
3. Coca, A. F.: Virchow's Arch. f. path. Anat., 1909, **196**, 92. Loeb, L., Strickler, A., and Tuttle, L.: Virchows Arch. f. path. Anat., 1910, **201**, 5. Zinsser, H.: Jour. Exper. Med., 1911, **14**, 25. Kritchewsky, J. L.: Jour. Infect. Dis., 1918, **22**, 101.
4. Ottenberg (Note 1). Bernheim: Blood Transfusion, Philadelphia, J. B. Lippincott Company, 1917, p. 69.

Military Medicine and Surgery

THE UREA INDEX AS A TEST FOR KIDNEY FUNCTION IN A WAR HOSPITAL*

REGINALD FITZ, M.D. (NEW YORK)
Captain, M. R. C., U. S. Army
FRANCE

During the past nine months, observations on nephritis have been made in this hospital, with McLean's[1] urea index as a test for kidney function. The results have been so helpful for diagnosis and prognosis that the technic employed and certain case protocols are recorded in order to show that the test can be carried out advantageously in a tent hospital with only elementary laboratory facilities.

McLean's directions were followed absolutely. Before each test the patient was given from 150 to 200 c.c. of water, to insure a free flow of urine. One half hour later, in order to start with the bladder empty, he voided. The time of voiding was recorded to within one minute. About thirty-six minutes later, at least 3 c.c. of blood were withdrawn from an arm vein into a dry tube containing a few milligrams of potassium oxalate to prevent clotting. At the end of seventy-two minutes from the first voiding, the bladder was again emptied, the urine carefully measured to within 1 c.c., and used for analysis. The patient took no food or water during this period. Otherwise no restrictions were placed on him. The seventy-two minute period was merely for convenience, as being one twentieth of twenty-four hours. Any other period, preferably not too long, would serve.

Analyses were made by the most accurate, convenient and rapid method available for determination of urea in the blood and urine. The urease method, introduced by Marshall,[2] fulfilled all of the require-

* From the Medical Division of U. S. A. Base Hospital No. 5.
1. McLean, F. C.: Jour. Exper. Med., 1915, **22**, 212, 366; Clinical Determination of Renal Function by an Index of Urea Excretion, THE JOURNAL A. M. A., Feb. 5, 1916, p. 415.
2. Marshall, E. K., Jr.: Jour. Biol. Chem., 1913, **14**, 283.

ments. This method depends on the breaking down of urea into ammonia and carbon dioxid by the specific enzyme found in the soy bean and the subsequent determination of the ammonia. The permanent preparation of urease described by Van Slyke and Cullen[3] was used, and determinations were carried out in the manner described by them, with a few necessary modifications. The method is simple, very rapid and

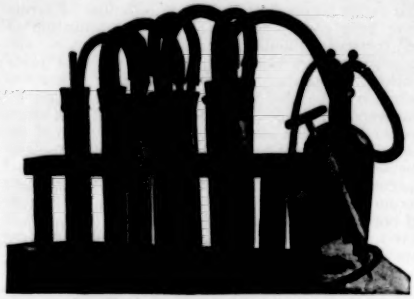


Fig. 1.—Apparatus for aeration of ammonia into fiftieth normal acid with chest aspirating pump: Tubes 1, 2, 4 and 6 contain fiftieth normal acid, Tube 1 being used to absorb whatever ammonia may be present in the air. Tube 3 contains urine only; Tube 5 contains urine and urease; Tube 7 contains blood and urease. The current of air is drawn through the tubes from 1 through 6 by means of the chest pump and vacuum bottle.

requires the minimum of manipulation. Three analyses are necessary: blood urea, urine urea, and urine ammonia. The last is determined in order to correct the urea figure for preformed ammonia, which is also determined in the urea method. Since the method depends on the quantitative determination of ammonia by its aeration into weak acid and titration of the excess acid with alkali, it was necessary to use some sort of aeration apparatus. A water suction pump would have been satisfactory, but water was not always available. However, it was found that an ordinary chest aspirating pump produced sufficient vacuum to complete the reaction in about forty-five minutes.

The acid and alkali used in titration are fiftieth normal and hundredth normal alkali and fiftieth normal acid. Such weak solutions tend to change if they are allowed to stand too long. To obviate this, normal solution were kept in tightly stoppered bottles from which a few cubic centimeters were frequently taken and diluted in calibrated flasks with the proper amount of distilled water. Every week or ten days the solutions were checked.

To carry out the test, therefore, the apparatus included burets for hundredth normal and fiftieth normal alkali, an aspirating set, and the few necessary reagents and the glassware. The equipment could be packed in a small box and set up anywhere in a few minutes. The entire time used for a test was only seventy-two minutes for the period and about seventy minutes for the completion of the analyses.

The results from the determination were calculated to the form in which they are to be expressed in McLean's formula. The weight of the individual should be known to within 1 kg. As scales were not always obtainable, the patient's weight was estimated and was assumed to remain constant during as many tests as were made. This introduced a slight but inevitable error. The four variables were substituted in the formula and the index calculated by McLean's special calculating device on a 10 inch slide rule.[4] With a little practice in reading the scales, calculation became mechanical and required only a few seconds. Without a slide rule, calculation could be performed by logarithms.

Perhaps the most striking case encountered to demonstrate the prognostic value of the test was the following:

Case 1.—*History.*—Private C. A. B., aged 24, admitted, Jan. 22, 1918, had been well all his life except for attacks of "nephritis" in 1915 and 1916. Despite this previous history, he had no difficulty in getting into the Army and was able to do his work satisfactorily. About the end of December, or a month before coming to the hospital, he began to notice that he became easily tired, having to fall out on marches, and getting short of breath on exertion. When he arrived in the hospital, he was comfortable, except for considerable dyspnea, and said that he felt as well as he had for several days.

Physical Examination.—His face was puffy and pale, though there was no demonstrable edema elsewhere. His heart was slightly enlarged to percussion, the action regular, not rapid, the sounds of good quality, a blowing systolic murmur was heard over the precordia, loudest at the base. The systolic blood pressure was 135 and the diastolic 45. There were no signs of peripheral arteriosclerosis nor eyeground changes. The lungs were negative except for numerous diffuse scattered râles in both sides of the chest without signs of consolidation or hydrothorax. The abdomen, genitals and extremities were negative. A casual specimen of urine contained a trace of albumin, was pale, of low gravity, and contained a few leukocytes and an occasional cast. Without functional studies, the patient gave the impression of having nephritis, not notably sicker than many others who had been admitted previously. Analysis, however, showed the blood urea to be 3.72 gm. per liter, and that the urea index was less than 1. These facts, discovered within two hours after the patient's admission, proved that the man was critically ill and made it seem probable that he would die within a short time. The subsequent course is shown graphically in Figure 2.

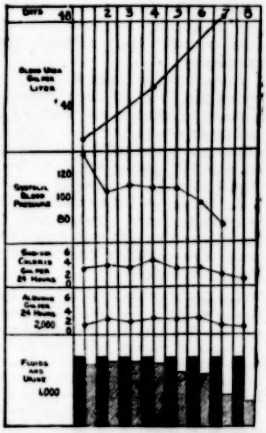


Fig. 2.—Renal function in Case 1.

Course.—As can be seen, there was no oliguria until the last three days of life, the excretion of chlorid was not materially interfered with, there was no marked albuminuria, and there was a dropping blood pressure. During the first few days the patient appeared to be improving. Thus from clinical and routine laboratory observation alone, it would have been impossible to recognize the seriousness of the patient's condition. However, a second urea index three days

3. Van Slyke, D. D., and Cullen, G. E.: Jour. Biol. Chem., 1914, 19, 211.

4. The rule, with directions for use, may be obtained from the Keuffel and Esser Company, 127 Fulton Street, New York.

after entry showed that the index was again less than 1, and that the blood urea concentration had climbed to 4.15 gm. per liter. Three days later the patient became oliguric, the blood urea rose still farther, and the patient died. At necropsy the kidneys showed a typical chronic glomerular

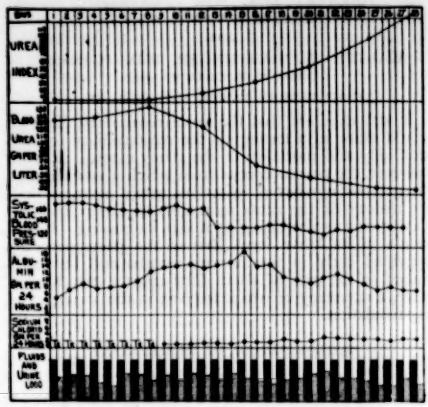


Fig. 3.—Renal function in Case 2.

nephritis with extreme atrophy of both kidneys, especially of the left, which weighed only 50 gm.

Two other less serious cases are recorded to show the satisfactory fashion in which the course of an acute nephritis can be followed by this test, and the results of slight modifications in treatment.

CASE 2.—*History.*—Private G. B., aged 40, admitted, Sept. 19, 1917, had been well until seven days before entry (September 12), when he suddenly felt headache and general malaise, soon followed by shortness of breath and the development of generalized edema. Despite these symptoms, he carried on until two days before entry (September 17).

Physical Examination.—The man was orthopneic, with marked edema of the face, sacrum and legs. There was no hydrothorax or ascites. The heart was not enlarged, the action was regular, not rapid, and the sounds were normal. The systolic blood pressure was 166 and the diastolic 80. The lungs were normal except for a diffuse bronchitis without signs of consolidation. The abdomen was normal, as were the eyegrounds. The observations made on renal function are shown in Figure 3.

Course.—As can be seen, during the month that the patient remained in the hospital, he had a persistent oliguria so that his edema, by actual weight, increased. For the first fifteen days, the excretion of albumin rose, and for the first twelve days, the blood pressure remained almost constantly elevated.

From this evidence alone, it would have seemed that the patient was making little if any progress. The blood urea and urea index, however, gave valuable additional information. During the first eight days, the blood urea rose from 1.3 gm. per liter to 1.5 gm. per liter, and the index stayed below 10. These facts pointed to a severe nephritis, which was possibly increasing. After this, the blood urea fell rapidly to normal and the index rose, both beginning to change before the excretion of albumin had reached its highest figure and before the blood pressure had dropped. These findings showed that the patient was beginning to improve before there was any clinical evidence of it. The patient was evacuated with normal blood urea and urea index, though there still was massive edema. It seemed safe to predict that the patient would gradually improve and that eventually "dechlorurination" and polyuria with loss of edema would occur. A letter written two months later by the patient's medical officer at home proved that such was the case.

CASE 3.—*History.*—Private W. F. C., aged 34, admitted, Jan. 21, 1918, had noticed during the previous year that he had passed more urine at night than by day, but had felt well and able to work. About three weeks before entry (January 1), he became increasingly short of breath, began to complain of headache, and to develop edema in his face and ankles. At entry he was comfortable. His heart was not enlarged and was negative except for a faint systolic murmur over the precordia. The systolic blood pressure was 200, the diastolic 90.

Physical Examination.—The lungs and abdomen were negative. There was marked brawny edema on the face, legs and entire body. The eyegrounds showed slight vascular changes and one hemorrhage, which cleared up in about six weeks.

Course.—For the first twenty-four days the patient showed no frank diuresis, although the water output seemed to be gradually increasing. The excretion of albumin rose steadily

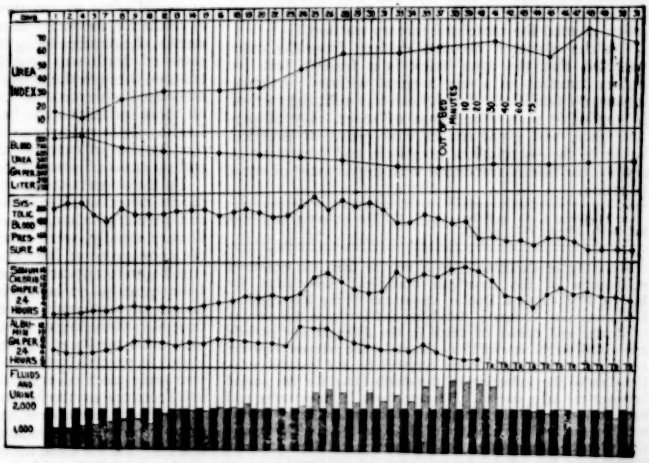


Fig. 4.—Renal function in Case 3.

and the blood pressure remained between 180 and 200. Thus, here again, from routine examination the patient seemed to improve very little. However, the blood urea fell gradually but consistently, and the urea index rose. It was safe to believe, therefore, that the condition was improving satisfactorily. Finally there was a diuresis accompanied by increased chlorid output and disappearance of edema. At

about the same time, the albuminuria diminished and the blood pressure began to fall. The man seemed so much better that he was allowed up for increasing lengths of time after being in bed for thirty-nine days. There seemed to be no immediate effect. On the day after he had been up for seventy-five minutes, however, the urea index was definitely lower than it had been before, and because of this he was kept in bed once more. Three days later the index had risen again. It was concluded from this observation that further rest in bed was indicated, and that actual harm had been done in attempting to get the patient up too rapidly.

COMMENT

These examples are sufficient to show that the urea index test for renal function can be applied satisfactorily in a tent hospital with little if any laboratory facilities. A legitimate question is whether it has any advantages over the phenolsulphonephthalein test of Rowntree and Geraghty[5] under such conditions. As McLean has shown, the curves of percentage of phenolsulphonephthalein excreted in two hours and of the urea index are parallel and are quite striking. In certain respects the phenolsulphonephthalein test is the simpler. It seemed, however, that for field work phenolsulphonephthalein had one serious disadvantage. Phenolsulphonephthalein is a nontoxic dye substance which must be injected either intravenously or intramuscularly. While this procedure is never troublesome where asepsis is certain, under field conditions it is preferable to use intramuscular or intravenous treatment as little as possible. Moreover, patients do not like to be injected every day or two with a foreign substance which leaves even a slight local reaction. The urea index, on the other hand, requires only 3 c.c. of blood, which can be taken with a fine needle so simply that no patient will mind several bleedings in one day, and the test does not require any foreign body. For these reasons the urea index seemed the more satisfactory method.

On the whole, it becomes evident from the cases reported that the urea index is a feasible test for kidney function in a war hospital without particular laboratory facilities. As McLean has said, the method is applicable in a wide range of cases, easy of performance, and gives results that prove of practical value in the recognition, prognosis and treatment of certain conditions associated with impairment of renal function.

5. Rowntree, L. G., and Geraghty, J. T.: The Phthalein Test, Arch. Int. Med., March, 1912, p. 294.

Mortality of Childhood.—In a reprint from the quarterly publication of the American Statistical Association for March, 1918, Louis I. Dublin, statistician of the Metropolitan Life Insurance Company, tabulates and analyzes the number of deaths and causes of death in the different age periods from birth to the age of 15 as shown by the returns from the registration area, and draws conclusions and recommendations as to the reduction of the death rates for the period between the ages named. He says there is opportunity and need for concentrating the efforts of the public health movement on the further reduction of child mortality. The reduction already accomplished shows large possibilities for conservation of life. The preschool years of childhood have as yet received little attention from the life conservation movement however, public health programs having more to do with the children after they enter school. The extension of infant welfare stations and clinics is suggested. An important consideration is improvement in our sources of information on child life, through accurate census-taking, improved birth registration, and a greater exactness in death registration.

THE STREPTOCOCCUS EPIDEMIC AT CAMP ZACHARY TAYLOR, KY.

A SURVEY *

HERBERT FOX, M.D. (PHILADELPHIA)
Major, M. R. C., U. S. Army
AND
WALTER W. HAMBURGER, M.D. (CHICAGO)
Major, M. R. C., U. S. Army
CAMP ZACHARY TAYLOR, LOUISVILLE, KY.

It was expected that the acute respiratory diseases would share with meningitis the responsibility for the morbidity and mortality of the Army camps. It was, however, the pneumococcus from which it was thought the greatest number of infections would come, so that the history of the acute infections of Camp Zachary Taylor was as surprising as it was interesting. Pneumonia in its lobar form, due to the pneumococcus, appeared early in the autumn months and has continued at the rate of about fifty cases a month ever since, a summary of which is given in the accompanying tabulation.

DETERMINATION OF PNEUMOCOCCI

	No.
Type I	37
Type II	29
Type II a	6
Type III	0
Type IV	93

The field was soon occupied by the streptococcus, which did not confine itself to the respiratory tract, but extended its malign influence to practically every tissue of the body, appearing, indeed, in the form of an epidemic infective agent. Chronologically, measles appeared after the pneumococcic pneumonias, typical in character, moderate in severity and leading to a few deaths, the number being the usual for the adult. The cause of death was bronchopneumonia, generally distributed through the lungs, and of the character usually associated with measles. A report on the pathology of all these infections has been submitted by Lieutenant Lucke. It is noteworthy that there was an insignificant number of cases of scarlet fever and chickenpox, and no cases of whooping cough.

On the appearance of the great wave of the streptococcus infections, late in November, the clinical picture and pathology changed noticeably. The men became ill very rapidly, were completely prostrated, and gave the appearance of having a profound toxemia; empyema began to appear; pathologically, the lesions turned from catarrhal to hemorrhagic, and the anatomic evidences of septicemia were manifested. At the same time also there began to appear severe angina, tonsillitis, otitis media et interna, and mastoid abscess, followed in several instances by meningitis. There were also some cases of erysipelas, and streptococcus cellulitis from one or another local cause.

By this time we were well aware of the presence of this streptococcus epidemic, and looked at it as separate and distinct from the measles. We based this view on the multiplicity of lesions caused by it, which stood in no relation to measles, and on the change in the pathology of measles itself as seen at the necropsy table. That the measles may have been increased in severity by the presence of a streptococcus is undoubted, but we believe that the two epidemics existed as separate

* From the Laboratory and Medical Services, Camp Zachary Taylor, Kentucky.

entities. This is further strengthened by the history in the late winter, as measles subsides while the streptococcus even increases its virulence with the production of primary sepsis and serositis, frequently ignoring the lungs and giving a high mortality.

ORIGIN OF THE INFECTION

Searching for the explanation of this infection, it seems most probable that it is a local process in some and a primary septicemia in other cases. Early in the history of the infection there were clinical reports of initial bronchitis, and evidences of pneumonia. In these the spread to the pleura may have been lymphogenic or peribronchial, as McCallum has suggested, the later sepsis being in these instances due to spread through the blood stream. In the recent cases, however, it would seem more likely that the process was a primary septicemia, although the infection atrium is clear in no case. The cases of primary empyema must surely be due to hematogenic spread, because, first, there was no pneumonitis in five of them; secondly, there was no cervical cellulitis and lymphadenitis with extension into the thorax, and thirdly, streptococcemia existed. There was also a case of primary pericarditis.

As the epidemic is reviewed, the gradual and sustained rise of virulence is noteworthy and requires an explanation. It seems desirable to mention that the autumn of 1917 at Camp Zachary Taylor was made unpleasant for the soldiers by considerable wind and dust; the latter was quite irritating and occasioned considerable coughing. The ground here is of clay and sand and has been highly cultivated. This may have contributed to the origin of the infection. A large percentage of soldiers at Camp Zachary Taylor are from rural or small town districts, and it is in such men that the infection has taken the greatest hold. It seems that the streptococcus has experienced a rise of virulence by ever appearing increments of newly exposed individuals.

When men arrive at the camp, some are in the incubation period of communicable disease, some are feeling the effects of the use or abuse of their last fling of freedom, and some bring infective organisms with them. For example, it was found that 15 per cent. of one contingent, mixed rural and urban, arrived at camp carrying hemolytic streptococci in the pharynx. Whether or not the draft men arrive depressed in vital resistance, by one cause or another, the first period of their life here is new to them and they are subjected to unaccustomed conditions, exercise, excitement, and exposure both to the elements and to infective agents. This results in fatigue, insomnia, and general depression of resistance until they have taken their bearings. With such an opportunity it seems that everything favors an increase in virulence of any organism that may be passing about, the effect being the same as the exaltation of virulence obtained by passing an organism through a series of animals in the laboratory. The movements of men in the camp, at Y. M. C. A. buildings, theaters, mess halls and barracks offer an excellent opportunity for the transmission of infection. The picture is sharpened by a consideration of the lack of knowledge of personal hygiene on the part of many men, especially in the depot brigade, before they have had sufficient instruction from the officers. They hawk, cough, sneeze and blow the nose without protecting the face, thus spreading the infection by droplets. When they get into the camp proper they meet new men heavily infected with streptococci, because it has been shown that the organism is to be found in all organizations. In one company of men, at camp an average of six months, 83 per cent. carried hemolytic streptococci in the pharynx. Another factor that assists in enhancing the virulence of the bacterium is a delay in early diagnosis of an illness, either because the man himself does not know he is a menace, or because he is not inspected sufficiently often. One reason certainly is that it is left to the soldiers to report themselves at sick call, whereas the medical man should go after the soldiers to weed out communicable diseases early. When soldiers crowd in the infirmaries for sick call, those with incubating infections contaminate those about them.

While, from the foregoing, it is evident that we consider the camp as an incubator of this streptococcus infection, it is nevertheless true that attempts should be made to prevent the men coming to it with an acute disease under way. A task that might be taken by the local exemption boards is that an inspection of the draft could be made at their station of departure, that is, before they board the trains and expose their fellow travelers to the camp.

METHOD OF COMBATING THE EPIDEMIC

Our attack on this epidemic entailed the following procedures:

The isolation of all measles patients entering the hospital, shown by blood-agar plates to have hemolytic streptococci in the pharynx, from those free from the organism. It has been shown by Alexander and Levy that the complications of measles are directly connected with the presence of streptococci in the pharynx, and that the isolation of such clean cases materially reduces hospitalization. All measles patients are swabbed in an observation ward.

The examination of dust from recreation rooms and certain barracks demonstrated streptococci. Proper policing of floors washed with disinfectants slightly reduced the morbidity.

It was suggested that whenever several streptococcic cases appear in a company, the whole personnel should be swabbed and the carriers isolated. This was found impracticable, because the barracks did not lend themselves to such arrangements, and military training would be greatly disarranged.

All patients with infectious diseases are put in wards arranged on the cubicle system with sheets, and all persons walking around or coming into the ward are masked.

Experimentation has been undertaken with several solutions of seemingly practical character to destroy streptococci on the pharyngeal wall. These have been unsuccessful so far. Several carriers who have failed to clear up with the use of various solutions in the ward, have promptly done so after being placed out on the porches with abundance of fresh air, good food and exercise.

It has further been proposed that all incoming individuals be swabbed for the presence of streptococci, and those harboring them isolated from the carriers. This has thus far been impracticable because of the absence of suitable small isolation units.

Because of the low resistance of the human being to the streptococcus when it once gets started, it seems that protective vaccination might offer some advantage, even though animal experimentation has not, in the past, demonstrated that serviceable antibodies in any considerable quantity are developed in the lower ani-

mals. This does not indicate that a cellular immunity might not occur if these organisms were used in the vaccine. It is certain that a clinical experiment of this sort with a personal record of the soldier so immunized would be the only answer to the question.

In addition to the foregoing, a detention camp in which men may rest and become acclimatized is imperative, and it should be arranged in small units, so that measles immune and nonimmune, streptococcus carriers and noncarriers or suspects of any kind may be quarantined for three weeks. Visitors should be prohibited; indeed, the isolation should be complete, with attention at all times to amusements and instruction, to prevent the men becoming restive.

When men report at infirmaries they should be separated while awaiting attention, and masked if coughing or complaining of a sore throat. The wards should be divided by sheets into cubicles, and general measures used to prevent crossed infections. All patients coming to the base hospital are masked, and on arriving at the receiving ward are given a cursory examination to find out into which one of the arranged cubicles they are to be put to be further examined and await their transfer to a ward. All wards for infective cases are arranged in cubicles, and all ambulant persons in the ward and all visitors are masked and gowned.

The use of masks in wards and latrines is similar to the method installed at Camp Grant by Major Capps.

CONCLUSION

The study of an epidemic of streptococcal infections in Army camps shows it to be a comprehensive problem of many interrelated parts, each of which should be analyzed and controlled. The local exemption boards may be regarded as multiple foci of potential disease feeding into the camp; the depot brigade as the portal of entry of men and infection into the camp, and the regimental infirmaries as the outpatient department of the base hospital.

A STUDY IN WAR NEPHRITIS

A NEW CONDITION ASSOCIATED WITH HEMORRHAGES IN THE BLADDER WALL AND URINARY SYMPTOMS: PRELIMINARY REPORT *

JOHN P. PETERS, JR., M.D. (NEW YORK)
Captain, M. R. C., U. S. Army
AND
A. RAYMOND STEVENS, M.D. (NEW YORK)
Captain, M. R. C., U. S. Army
FRANCE

Any review of the literature on war nephritis leaves one with the feeling that the subject lacks definition. There seem to be but two possible interpretations of the great variance of views and conclusions that appear: the first, that no single clinical entity is sufficiently inclusive to explain them all; the second, and more radical, that there is no such distinctive disease as "war nephritis."

It was from the latter point of view that we decided to approach the subject: we wished first to learn whether such a distinctive disease as war nephritis existed, and, if so, how to distinguish it from other varieties of acute nephritis. It was impossible to attack the problem from all sides at once, and we therefore restricted our preliminary work almost entirely to the careful clinical observation of every patient with nephritis, albuminuria and hematuria that came into the hospital. Practically we were only looking for a lead, hoping to find a loose end by means of which we might help to unravel the tangle.

Up to date, 155 cases have been studied. The amount of work done in each instance depended entirely on the nature of the case. We have found, among other things, an apparently undescribed condition that may prove to be a clinical entity. This paper is intended as a preliminary report of this condition, on which we are continuing our studies as fast as the limited amount of the material allows.

Of the 155 patients examined, seventy-three, or 47 per cent., were found to be suffering from chronic cardiac or renal disease with a recurrence of symptoms. In eight of these cases the first attack had occurred at the front; these may be called "recurrent war nephritis." Fifty-eight gave pretty clear evidence of previous cardiac or renal disease in history, physical signs of course. Seven gave no history of previous cardiac or renal symptoms, but suggested in their course an underlying chronic affection. This whole group represents largely the inadequacy of our methods of estimating normality. The relatively high number of cases of recurrent war nephritis (eight, or 5 per cent.) would seem to indicate that men who have suffered from this condition are unfitted for active duty in the front area. All these men had been returned cured after several months' treatment.

Of the remaining eighty-two cases, forty-nine presented a syndrome which marked them definitely as acute nephritis. Some of them were indistinguishable from similar cases seen in civil practice. Others differed in the relative importance of certain symptoms. The distinctive features of these cases have been brought out by Sir John Rose Bradford,[1] and, more recently, by Dunn and McNee.[2] We have nothing to add to their able descriptions of war nephritis proper.

A small group of eight patients developed signs of nephritis in the course of what appeared to be typical trench fever. In four of these the nephritis appeared as a transient albuminuria with casts, which rapidly cleared up. Five had hematuria as well, two had dyspnea and two edema. In only two cases was the course prolonged, and in those two, albumin and casts were still found in the urine after two months' treatment. Whether or not the trench fever bore any causal relation to the nephritis we are unable to say; but the occurrence of renal complications in these cases leaves one with the impression that the hitherto accepted view of the absence of after-effects from trench fever is not entirely satisfactory.

Four cases of panurinary infection were found. All were febrile cases with pyuria, and in all the presence of a cystitis and double bilateral renal infection was demonstrated by means of cystoscopy and ureteral catheterization. From the urines of which cultures were made the colon bacillus was obtained.

Early in the course of the work we received a patient with profuse hematuria who complained of symptoms strongly suggesting vesical calculus or papilloma. Cystoscopic examination by one of us revealed neither stone nor neoplasm, but, instead, multiple submucous hemorrhages in the bladder wall and blood pouring from both ureters. Since then we have found fourteen other patients with the same bladder picture, and latterly have been able, in several

* From No. 1 (Presbyterian, U. S. A.) General Hospital, B. E. F.

1. Bradford, J. R.: Quart. Jour. Med., 1916, **9**, 125; Jour. Royal Army Med. Corps, October, 1916.
2. Dunn and McNee: Brit. Med. Jour., 1917, **2**, 745.

instances, to anticipate the condition we should find, before performing cystoscopy. These fifteen cases make up 10 per cent. of all the nephritics received during the course of this study, and 15 per cent. of all the acute nephritics, proportions that render the condition of more than passing importance.

The clinical picture presented by these patients, if they are considered as a group, was entirely different from that of ordinary acute nephritis. The predominant symptoms, and the only constant ones, were profuse hematuria, frequency of urination and urgency, and pyrexia of an irregular and variable type. The majority also had pain on urination. In a few cases a diagnosis of renal calculus had been made, on account of the association of renal colic and hematuria. These patients later suffered from difficulty in starting the urinary stream, and from severe suprapubic and urethral pain. Cystoscopy revealed the presence of the typical vesical lesions, and in four cases in which the operation was performed while the patients still showed gross hematuria, blood was seen emerging from both ureters. The colicky pains have in every case been coterminal with the gross hematuria, and may have been due to the passage of clots which, in some cases, were later found in the urine. The frequency and dysuria often persisted after the urine had completely cleared up.

Only one of these patients was afebrile throughout the course of the disease. In most cases the initial temperature was quite high, and in one instance 103.8 while under our observation. Of course our records are incomplete, because we have scant notes on the initial period of the disease. The temperature curve is very irregular, and no definite type appears. However, there seems to be a tendency toward slight relapses after the first remission.

RESULTS OF EXAMINATIONS

History of Previous Illnesses.—One patient had had scarlet fever without complications in 1915. Another had diphtheria twenty-six years ago, and rheumatism nine years later. One had been subject to tonsillitis. Three said that they had suffered from some shortness of breath on long marches, but had had no other symptoms of cardiac disease. One had had edema of the face and limbs two years before, which was ascribed to poisoning. Two patients had had gonorrhea; the remainder denied venereal diseases, and none showed any evidences of existing gonorrhea or syphilis. Two had been rejected for the Army, one in 1915 and the other in 1916, but did not know why. One of these had a marked myopia. All were members of active line organizations except one, an orderly of this hospital who had passed a careful physical examination before admission to the Army. Their ages ranged from 19 to 36. All had been in France for at least four months, and all except the orderly mentioned above were in the front area at the time of onset of the illness. With the possible exception of the one patient who had had general edema, then, the cardiac and renal histories may be considered negative.

Mode of Onset and Prodromes.—In nine of the fourteen patients the onset was sudden, with hematuria and its concomitant symptoms. One said he had "felt queer" for twelve hours before the hematuria began. One, after a severe cough of seven days' duration, suddenly developed hematuria, urgency and dysuria. One complained of increasing weakness for six days before the onset of urinary symptoms. (As this patient failed to recognize a gross hematuria, even after he had burning urination and frequency, it is possible that he may have passed blood earlier.) Another had headache, nausea and vomiting for two or three weeks before the appearance of urinary symptoms. Seven complained of weakness or giddiness at the time of onset, and one of these fainted twice. Eleven had headache. Ten had pains in the small of the back, sometimes resembling renal colic. A considerable number also complained of pains in the legs. Four vomited, and one had diarrhea for twenty-four hours only. Two besides the patient mentioned above complained of cough. Two of the three cases in which temperature records were obtained showed a pyrexia within twenty-four hours of the first appearance of urinary symptoms.

Two cases have not been included in the previous discussion for reasons that will appear, and will be considered separately later.

Physical Examination and Clinical Findings.—Those patients who were admitted during the febrile stage of the illness approached, in general appearance, the picture of an acute infection; later the most striking features were pallor and general debility. Unfortunately we were unable to determine the actual degree of anemia except in one case. In this, both red cells and hemoglobin were reduced about 40 per cent. Three of the cases showed herpes labialis, and in one instance the lesions later became infected. With these exceptions the skin and visible mucous membranes were clear, but for the usual peliculosis and scratch marks. Cutaneous, oral and conjunctival hemorrhages were never found, in spite of repeated examinations. Edema and dyspnea were noticeably inconspicuous. Puffiness of the face was observed once and reported once in the history; the former patient was also reported to have had slight swelling of the legs at the onset of his illness. Exertional dyspnea was not common, and occurred only in association with pyrexia. With one exception no signs of respiratory disease were discovered. This patient had had a severe cough, antedating his urinary symptoms by ten days. On admission the cough was subsiding, but râles, dulness and increased voice and breath sounds were present over the right upper lobe. Abnormal cardiac signs were discovered in four cases: One showed a transient enlargement of the area of cardiac dulness without murmurs; two, systolic murmurs without enlargement, and one, a slight persistent enlargement with a transient systolic murmur. There were no disorders of cardiac action. The spleen was palpable in one instance. The liver was never found enlarged either by palpation or by percussion. Tenderness in the upper abdomen was present in two cases, and tenderness in one or both costovertebral angles in five. In spite of the frequency of pains in the legs, tenderness in the shins and calves was present only once, and then was very slight.

Special Examinations and Laboratory Findings.—Repeated blood pressure examinations were made by the auscultatory method with the Tycos apparatus. The tension was never found elevated, reaching 140 as a maximum in only a single observation. Ophthalmoscopic examinations in eight cases revealed no hemorrhages nor other abnormalities. Of seven blood cultures, only two showed any growth. In both of these, single colonies of cocci (probably pneumococci) were found. It is safer to consider these as con-

taminations, for the present at least, as subsequent cultures from the same subjects proved negative. From the catheterized bladder urine in eight cases, staphylococci, obviously contaminating organisms, were obtained in culture three times; the other specimens were found sterile. The following mediums were used: broth, glucose agar, hydrocele-glucose-agar and blood agar. In two cases, anaerobic cultures were also set up.

White blood cells and differential counts on six patients showed so little uniformity that no conclusions can be drawn from them. A red cell count and hemoglobin estimation on one patient showed 2,700,000 cells with 60 per cent. hemoglobin, a considerable anemia. No morphologic changes were observed in the cells except some central pallor. No nucleated red cells were found.

All the patients exhibited gross hematuria, of variable duration, in the early stages of the condition. All but one showed casts at some time. Usually the casts were of the hyaline and granular types; but frequently epithelial and red blood cell casts were present. Although gross blood did not persist very long, erythrocytes were observed in the urine as late as the fifty-ninth day of the disease in one case, and the forty-first day in another. Only once was any considerable number of leukocytes seen, and never frank pus. Sometimes the urine became negative for a period, with a later recurrence of albumin and casts. Albumin was seldom very marked; in most cases it could be fully explained by the amount of blood present. Only one patient was discharged with consistently negative urinary findings; and another, who is still in the hospital, has now had a negative urine for ten days. The majority left the hospital with a slight trace of albumin and a few casts; six showed blood cells persistently. The periods of observation varied from the eleventh day of the disease to the seventy-second. Although we have tried to follow these cases by means of cards, we have as yet received no replies.

The only renal function test which we have been able to employ is the phenolsulphonephthalein test. In all but three cases there has been a definite diminution in the excretion of the dye, the output varying from 15 to 48 per cent. in two hours. When repeated tests have been made, an improvement of function has usually occurred with convalescence.

Cystoscopy.—Cystoscopic examination of the earlier cases was undertaken to determine the origin of unexplained hematuria associated with symptoms pointing to lesions of the lower urinary tract. A striking and unusual picture was found: multiple hemorrhages in the bladder mucosa, unassociated with inflammation, tumor or stone. In those patients presenting gross hematuria at the time of cystoscopy, bloody urine was seen coming from both ureteral orifices. Renal tuberculosis and neoplasm were thought of, but seemed unlikely in view of the symptoms and other findings enumerated elsewhere, and, moreover, would offer no elucidation of the bladder picture.

The cystoscopies were done from four to eighteen days after the onset of the illness. In all of the thirteen patients whose bladders were examined, practically the same conditions were found: multiple small hemorrhages into the bladder mucosa without ulceration. There were from two to over twenty in each case, and, when numerous, they appeared to be somewhat grouped. They varied in size from minute punctiform spots to areas about 1 cm. in diameter, and were irregular in shape, often like a broad flame. They were usually situated definitely along the course of visible blood vessels, and were more common on the posterior wall and the posterior parts of the lateral walls of the bladder; twice they were present on the anterior wall, but associated with more numerous ones posteriorly. In four cases the trigon was involved, chiefly the proximal part, but not particularly the neighborhood of the ureteral openings. In every instance the ureteral orifices were normal. The bladder mucosa was normal (except for the hemorrhagic areas) in all but two cases, in which general engorgement of the blood was found.

Latterly five patients have been reexamined by cystoscopy. In none were we able to say that a new crop of hemorrhages had appeared. In four no sign of the old hemorrhages could be found, thirty, twenty-one, twenty and eight days after the first cystoscopy. In the last of these four cases, the original observation was "fifteen to twenty *minute* hemorrhages." In the fifth instance referred to there were numerous moderate sized lesions, some of which were still recognizable twelve days later, though of a brownish rather than a red color, and with less distinct borders.

Examination of the urethra by endoscopy should be made, and we hope to include this in the future studies.

Althought it is relatively easy to detect slight bleeding from the bladder wall or a tumor, with a good cystoscope used in a water medium, we have seen no bleeding from the bladder mucosa in any case. Moreover, it is not uncommon to find red blood cells in the urine of these patients after the bladder has cleared up. In some cases we have actually seen blood coming from the ureters, and we feel strongly that the upper urinary tract is the source of most of the blood found in the urine in the cases under discussion. Also, in view of the fact that the bladder evidences clear up rather rapidly, that recurrent hemorrhages into the bladder have thus far not been found, and that at present we are dependent on these cystoscopic signs for a diagnosis, it seems quite possible that the pathologic condition we are describing is more common than our figures show.

In two cases there was tenderness in one or both renal regions, but in no instance were the kidneys definitely felt. The external genitalia were uniformly normal. The prostate and seminal vesicles showed evidence of chronic inflammation on rectal palpation in only one case of the ten thus examined, and this man denied gonorrhea, and had not a trace of pus in the urine at the time of examination.

Pathologic Report.—We were able, by means of a small punch, to obtain specimens from the hemorrhagic spots in three cases. On section, these showed no typical lesions. The mucosa was entirely normal and unbroken. The submucosa showed a profuse and somewhat patchy infiltration of well preserved red blood cells, but no leukocytic infiltration, and nothing suggesting an inflammatory lesion. The blood vessels were somewhat engorged. In one specimen, small nodular accumulations of degenerating connective tissue cells and wandering cells were found in the vicinity of the small arterioles. No organisms could be demonstrated by Gram, Giemsa or Wright stain.

Two cases have thus far been omitted from the discussion. Although these patients ran entirely different courses from all the others, and gave evidences

of hemorrhages elsewhere than in the urinary tract, it is impossible to leave them out entirely because they presented typical noninflammatory bladder hemorrhages, the only distinctive feature of the condition we are describing. One died with a general hemorrhagic condition, but at the onset of his illness the bleeding was confined entirely to the urinary tract. The other, after a six weeks' illness resembling trench fever, developed almost simultaneously cerebral symptoms and hematuria. The neurologic consultant thought the former could be explained only by multiple small cerebral hemorrhages. The typical bladder picture was found at cystoscopy, and the urine contained both blood and casts. The subsequent course, including urinary symptoms, was similar to that seen in other cases of this group. It may be that we are dealing with a hemorrhagic disease which usually reveals itself only in the urinary tract, but, in severe cases, also affects other organs.

COMMENT

The consistent presence of casts in the urine, and the reduction of the phenolsulphonephthalein excretion seem to be sufficient evidence to justify us in saying that these patients have a renal lesion. On the other hand, they differ in very essential respects from ordinary cases of acute nephritis. The common symptoms of edema and dyspnea are almost entirely lacking, as are uremic manifestations. Moreover, although we have examined by cystoscopy eighteen patients who had typical nephritis and hematuria, none have shown bladder hemorrhages, the most striking feature in our cases.

Sir John Rose Bradford[1] in 1916 suggested the presence of a distinct hemorrhagic nephritis. We quote from his article:

> In some instances, especially if the case is seen early, the urine may contain a large quantity of blood, so as to be obviously red to the eye. . . . Such cases present a rather different clinical picture to the general run of cases in that with them dropsy is neither so frequent, nor when present, so marked a feature of the case. Further, these hemorrhagic cases more frequently have pyrexia and resemble much more closely in their course infective nephritis dependent upon some microbic invasion. . . . In a few instances the hematuria and pyrexia have been intermittent and recurrent, producing a clinical picture closely resembling that seen in renal embolism; but these patients have not been suffering from any condition liable to cause embolism. . . . These cases, however, are few in number, and are quite different from the ordinary form of nephritis . . . where dropsy is really the dominant physical sign. .

Dunn and McNee[2] have also called attention to a similar group of cases in their clinical analysis, but make no such distinction in the pathologic study.

The cystoscopic picture is entirely different from that seen in acute cystitis, where hemorrhages may occur but are associated with other signs of inflammation. Hemorrhagic spots removed from such bladders as controls presented an intense leukocytic infiltration, edema and tissue degeneration about the hemorrhages.

The bladder hemorrhages can not at present be distinguished from any other purpuric lesions, but a purpura of such frequent occurrence, which is apparently limited, in at least a large proportion of cases, to the urinary tract, is in itself worthy of note. Scurvy seems highly improbable.

It is possible that we may be dealing with a type of anicteric spirochetosis. A few microscopic examinations of catheterized urine sediments stained by the Fontana and India ink methods have been negative.[3] Of course, the evidence that we are dealing with a clinical entity is not complete, but the frequent occurrence of such a distinctive syndrome makes it seem probable.

We are continuing and enlarging the work, and hope that we shall be able to present detailed results with complete protocols at an early date.

PARAFFIN PAPER AS A SURGICAL DRESSING

CHARLES M. HARPSTER, PH.G., M.D.
TOLEDO, OHIO

On account of the small supply and high cost of gauze, paraffin tissue paper will be found an excellent dressing for burns or any other condition in which a nonadherent dressing is desirable. It is far superior to the paraffin dressing of burns by the spray method, is much more easily and rapidly applied, results in more rapid healing of the burned surface, and is more easily removed.

In the first stage of burns, when there is great pain, the various ointments now in use can be applied directly to the paraffin paper and this applied to the burned area after all vesicles have been opened. It has the advantage of excluding the air, which relieves the pain of the burns, and it is readily removed at the time of redressing, leaving the developing granulations unaltered.

The first dressing, of pure petrolatum on paraffin paper, is applied directly to the burn, and over this a layer of cotton and the usual bandage. As the paper is impervious to moisture, the serum that seeps from the injury runs away from the raw surface, and is absorbed by the outer dressings beyond the injury. There is no sticking to the burn or other wounds, when the dressings are removed. Experience has proved that dressings once in two or three days are sufficient in most cases. Certain cases, however, may require more frequent dressings.

Paper bandages, which are now being universally used, perhaps more through necessity than choice, have been found to work well in certain dry dressings. But the thought arose, what a great saving could be accomplished if they could be used on moist dressings or dressings in which there is considerable oozing or drainage. Here again, the paraffin paper can be utilized as a barrier between the moist dressings and the paper bandage. It has the desired effect of keeping the moisture inside the dressing, and prevents the paper bandage from becoming wet and tearing easily.

The paraffin paper can be secured at almost any store where groceries are sold. An attempt is being made to have some dressing manufacturers put it up in sterile packages for general surgical use.

The advantages of the paper were accidentally discovered when a suitable dressing for a severe burn was needed at a patient's residence. The paper was ideal in this case. It has been employed in numerous other instances, and I have mentioned only a small number of its uses. It can take the place of oil silk or rubber tissue, in which case a double sheet is desirable, or, as I hope to secure soon, a heavier coated paper.

301 Wedgewood Building.

3. More recently, injection of catheterized urine into guinea-pigs has proved negative in three cases.

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SCIENCE AND FOOD PRODUCTION

The admonition of the United States Food Administration that we must save meat includes an implication to the dietetically thoughtful person that some other form of food rich in protein should be substituted for it in the diet. Among the products suggested for this purpose none offers greater promise of value than cheese. The attempt to encourage the use of cheese, in place of meat, is the more timely because, along with butter, it represents a way in which milk can be stored, so to speak, for future use. Furthermore, the administration officials have recently given assurance that large stocks of cheese are now on hand in this country and awaiting consumption. Until recently, at any rate, the United States could not be regarded as a cheese-eating nation in the same sense in which this might apply to European peoples. A census made in 1909 estimated the production of cheese for the United States at about 311,000,000 pounds. To this must be added a considerable importation, so that the cheese consumption was about 3½ or 4 pounds per person per year. This is a low figure in comparison with the amounts of meat and butter consumed, thus suggesting that there is room for considerable increase in the use of cheese.

One obstacle to the wider dietary employment of cheese in the United States at present lies in the fact that many types of this food have traditionally been imported; and until comparatively recent times it has been firmly believed—as still assumed by the majority of cheese lovers—that most of the many favorite brands cannot be produced elsewhere than at the original place of manufacture. The principal importations have been of Parmesan and Gorgonzola cheese from Italy; Emmenthal cheese from Switzerland; Roquefort, Camembert and Brie from France, and Edam cheese from Holland. These, however, by no means exhaust the list, particularly of the varieties which the epicure frequently has adopted.

Precisely as we are rapidly learning that the "made in Germany" brands of drugs and chemicals and diverse other essential items can be successfully replaced by home-made products, it is becoming evident that the quality of cheeses is not so much a question of countries and climes as of micro-organisms and science. When our dairy mycologists began to direct their attention to the changes that milk undergoes during fermentation and the ripening of cheese, it early became apparent that the nature of the product could be controlled and modified by the application of scientific methods. About three quarters of the cheese used at present in the United States is of the Cheddar type, often spoken of as American cheese. But cheeses of the Brie, Camembert, Neufchâtel, Swiss and Limburger types are also being successfully manufactured here, particularly in the great milk producing states of New York and Wisconsin.

The hard cheeses, such as the American Cheddar and the Swiss types, depend on a suitable bacterial flora for their normal development. In the softer cheeses, molds play an important part in the ripening. In these types also a rapid development of lactic acid bacteria is necessary to bring about the proper physical condition of the curd in the various stages of manufacture. Dr. Thom of the Bureau of Animal Industry, the foremost expert in this field of research, has shown that a specific mold, which he has termed *Penicillium roqueforti*, is concerned in the ripening of Roquefort, as well as of Gorgonzola and Stilton cheeses, and is responsible in large measure for their peculiar flavor.[1]

The problems of Roquefort cheese are illustrative of what our men—and women—of science are being called on to solve. This food product, which has been produced in southeastern France for at least two centuries, is a hard rennet cheese made from the milk of sheep. The imitations of it have been prepared from cow's milk, so that questions of identity of procedures and product have naturally become pertinent. In a recent investigation by Evans[2] in the Dairy Division of the Bureau of Animal Industry, it has been shown that the micro-organisms essential for the manufacture and ripening of Roquefort cheese are *Streptococcus lacticus* and *Penicillium roqueforti*. *Streptococcus lacticus* decomposes the lactose during the manufacture of the cheese, and thus produces the lactic acid necessary for the cheese making. These organisms disappear from the cheese after two or three weeks, being killed by the high concentration of sodium chlorid. The remaining flora of Roquefort cheese consists of cheese streptococci and *Bacterium bulgaricum*, organisms that are found in all kinds of ripening cheese. These organisms do not have any significant part to play in the ripening of Roquefort cheese. All experimental cheeses of this variety were made from cow's

1. Thom, C.: Fungi in Cheese Ripening: Camembert and Roquefort, Bull. 82, U. S. Dept. Agr., Bur. Animal Industry, 1906. Thom, C., and Matheson, K. J.: Biology of Roquefort Cheese, Bull. 79, Conn. Storrs Agr. Exper. Sta., 1914. Thom, C.; Matheson, K. J., and Currie, J. N.: The Manufacture of a Cow's Milk Cheese Related to Roquefort, Bull. 79, Conn. Storrs Agr. Exper. Sta., 1914.

2. Evans, Alice C.: Bacterial Flora of Roquefort Cheese, Jour. Agr. Research, 1918, **13**, 225.

milk, but there was no evidence of any essential variation from the imported product. Such experiments in the control of complex biologic reactions and the reproduction of recognized desirable food products under new conditions of manufacture are timely and commendable. They initiate new possibilities and they attest the universality of science. Recently many persons have begun to look on science as an agent of subjugation; but it is certain to be far more potent as a force for the emancipation of mankind.

MODERN VIEWS OF HAY-FEVER AND ASTHMA

Recent work on hay-fever, asthma, eczema, urticaria and angioneurotic edema is being rewarded with interesting results. It has been noted that these various diseases are frequently associated in one family and occasionally even in one individual. Formerly, hay-fever was regarded as due to "a predisposing—perhaps neurotic—idiosyncrasy, a resulting hyperesthesia" and "an exciting agent"—pollen in true hay-fever, unfavorable atmospheric conditions in so-called pseudohay-fever. Now, however, not only has stress been placed on the resemblance of the symptoms in hay-fever, asthma and allied conditions to some of those of active anaphylaxis (by Wolff-Eisner, Meltzer and others) but, as Koessler[1] says, it has been proved by experiment that hay-fever is a disease due to pollen protein sensitization. It has been shown also that asthma in certain cases may be precipitated by inhalation, by subcutaneous injection or by ingestion of the foreign protein to which the individual is sensitized, as in horse asthma or in patients who develop from their hay-fever true paroxysms of asthma.[2] In similar manner, certain forms at least of eczema, urticaria and angioneurotic edema have been determined to be forms of protein sensitization, and new methods of diagnosis and treatment are being worked out.[3] With this new point of view, the "predisposition" of former times is now "sensitization" or "allergy," and the exciting agent is the specific foreign protein, as pollens in hay-fever, and pollens, animal emanations, food or bacterial proteins in asthma, eczema, urticaria and angioneurotic edema.

The offending protein may be detected by cutaneous and ophthalmic tests with extracts of the suspected proteins. The tests are based on the fact that the cells may react to the protein involved when applied directly. While the significance of such tests has not yet been worked out completely, the results indicate that the diseases are indeed examples of allergy. This is true of hay-fever quite generally, of asthma also but with exceptions, and of certain forms of eczema, urticaria and angioneurotic edema, as found with increasing frequency. These allergic diseases appear to carry a definite inheritance factor, a positive family history being found in something like 50 per cent. of susceptible persons, as against 14 per cent. of normal persons. It has been claimed that the capacity for sensitization is transmitted nonspecifically as a mendelian dominant, specificity being acquired usually in a manner as yet ill understood through inhalation, ingestion or intradermal reception of foreign protein.

In a recent report on so-called horse asthma as well as asthma from other forms of sensitization, de Besche[4] describes the case of a physician that illustrates not only early onset of asthma and its association with hay-fever in the same person as well as in other members of the family, but also the induction of typical anaphylactic shock on the injection of antidiphtheria serum, followed for a time by an apparently complete desensitization. In this case as well as in others, specific eye and skin reactions were obtained with horse serum, the eye reaction being obtained by simply touching the conjunctiva with the finger, which had just touched a horse. When the patient's serum was injected into a guinea-pig, horse serum being injected a few hours later, anaphylactic shock resulted. In one case death—passive anaphylaxis—occurred. It is of interest to note that in the case of the physician, exposure to emanations from horses, injection of horse serum, and the ingestion of sausage containing horse meat all caused asthmatic attacks; this patient was sensitive also to rabbit and guinea-pig emanations as well as to rabbit serum. Other cases of asthma described are in many ways similar; but, as commonly observed, with variation in the age when the nature of the trouble was recognized as well as in the course and in the symptoms. In one patient, acute gastro-intestinal symptoms developed, corresponding to the so-called anaphylactic gastro-enteritis. It appears that not all persons subject to horse asthma are sensitive to horse serum, and that consequently the danger of injecting antitoxic serum is less than might seem to be the case at first glance; but the necessity of careful tests of all asthmatics before injecting serum for therapeutic purposes, now generally recognized, remains as obvious as ever. Among other instances of sensitiveness described by de Besche is one of hay-fever-like manifestations associated with pronounced acute gastro-intestinal disturbances caused by flowers, more particularly roses; whenever exposed for fifteen or twenty minutes to the odors of roses, this patient, a man, had

1. Koessler, K. K.: The Specific Treatment of Hay-Fever by Active Immunization, Illinois Med. Jour., 1914, **26**, 120.

2. Koessler, K. K., and Moody, A. M.: Contribution to the Etiology of Chronic Bronchitis Associated with Bronchial Asthma, Chicago Soc. Int. Med., 1917, **1**, 7. Walker, I. C.: The Cause and Treatment of Bronchial Asthma, Med. Clin. of North America, 1918, **1**, 1177.

3. Longcope, W. T.: The Susceptibility of Man to Foreign Proteins, Am. Jour. Med. Sc., 1916, **152**, 625. Longcope and Rackemann: Severe Renal Insufficiency Associated with Attacks of Urticaria in Hypersensitive Individuals, Jour. Urol., 1917, **1**, 351. Walker, I. C.: Causation of Eczema, Urticaria and Angioneurotic Edema by Proteins Other than Those Derived from Food, THE JOURNAL A. M. A., March 30, 1918, p. 897.

4. De Besche, Arent: Hypersensitiveness and Asthma, Especially in Relation to Emanations from Horses, Jour. Infect. Dis., 1918, **23**, p. 594.

colic and diarrhea at the same time as sneezing and running of the eyes. In some of the instances recorded, the sensitiveness appeared to increase with time. As stated, we do not understand fully how this abnormal sensitiveness develops, whether it is inborn or acquired. Bearing on this question, a case recorded by Walker[5] is of special interest: a woman, aged 20, who had not had asthma before, was injected with horse serum without any immediate ill effects; but two weeks later she began to have asthmatic attacks whenever in close contact with horses, and alcoholic extracts of horse dandruff gave a skin reaction. Here we have a definite instance of acquired sensitiveness.

Treatment of these allergic diseases includes protective as well as curative measures. The protective treatment aims to exclude the offending protein from reaching the sensitive patient. It is illustrated well in the case of hay-fever, not only by the migration of hay-fever victims to regions that are free from the pollens concerned, but also by the elaborate campaign against hay-fever waged by the American Hay-Fever Prevention Association,[6] aided by various governmental agencies. Some large cities now limit by weed-cutting ordinances pollination of the grasses and weeds causing hay-fever, and New Orleans is said to have decreased by these means the vernal type of hay-fever by more than 50 per cent in one season. The varieties and distribution of plants bearing hay-fever pollen are being determined, and undoubtedly preventive work of this kind if continued and extended will result in great reduction of the suffering from hay-fever. Persons subject to horse asthma are especially liable to attacks in places where horses abound, and de Besche mentions instances of complete relief from all symptoms when such persons leave the city and go to sea.

At present, the only form of curative treatment that offers any promise of help is based on the principle of desensitization (antianaphylaxis, anergy), injections being given of the particular proteins to which the patient in question is abnormally sensitive, the dose being selected with a view to avoiding severe reactions, as determined by ophthalmic or cutaneous tests. The effects so far obtainable are not marked, and repeated injections are necessary. In hay-fever the treatment with extracts of pollen is begun several weeks before the usual onset, and continued at intervals during the season. The results in hay-fever seem to be encouraging; the drawbacks are lack of permanence in result and difficulties connected with dosage. In other forms of sensitiveness, the specific treatment is being made the subject of careful investigation.[5]

5. Walker, I. C.: The Treatment of Patients with Bronchial Asthma with Subcutaneous Injections of the Proteins to Which They Are Sensitive, Jour. Med. Research, 1917, **36**, 422.

6. Scheppegrell, William: A Year's Work of Hay-Fever Prevention in the United States, Am. Jour. Pub. Health, 1917, **7**, 173.

DEHYDRATED VEGETABLES

The conservation of certain types of foods, notably fruits and vegetables, by desiccation has been brought into public prominence by the propaganda of the United States Food Administration and other agencies for inculcating food-saving. The preservation feature of this program is quite clearly understood by most persons who have given attention to the subject. Less well appreciated are some of the other features of the dehydration plan, particularly the actual change in the composition of the products with respect to their water content. The removal of the water not only yields a desiccated product that is not very likely to be lost by spoilage and decay, but also does away with the great bulk of the material so that the possibility of economy in transportation is greatly enhanced. Saving in tonnage and cargo space is at times an item quite as important as the other advantage afforded by desiccated products, namely, availability in seasons when fresh supplies are not readily obtainable.

In commenting on dehydrated vegetables, during a recent address delivered before the College of Physicians in Philadelphia, Major Murlin[1] of the Food Division of the Surgeon-General's Office called attention to some of the advantages which such foods offer in war time. He reported that the quartermaster's department of the Army has begun to place orders for dehydrated vegetables such as potatoes, onions and carrots for the use of General Pershing's army. As yet the tonnage contracted for is not large, but in all probability in the near future dehydrated vegetables will become a staple in our army rations, as they have already become in the ration of the British army. Thousands of pounds of dehydrated vegetables are being prepared in Canada, some also in the United States, for the British army. By simply soaking in water and boiling in the same water, these vegetables are brought back to the condition of fresh vegetables so perfectly that very often they cannot be distinguished from the fresh vegetables themselves. According to Murlin, another advantage of such products is the very high saving of time in the company kitchen. Dehydrated vegetables put up in packages are ready for the kettle; this saves the work of one or two men a day.

Elsewhere in this issue Givens[2] has presented statistics that elucidate some of the actual consequences of desiccation. A series of analyses of dried vegetables, conducted at the Sheffield Laboratory of Physiological Chemistry in Yale University, show that the quantity of water lost by such foods as spinach, lettuce, carrots, potatoes and cabbage may range from 70 to 97 per cent. Thus an entire barrel of spinach becomes concentrated into a package weigh-

1. Murlin, J. R.: Some Problems of Nutrition in the Army, Science, 1918, **47**, 495.

2. Givens, M. H.: A Consideration of Some Dried Vegetables with Special Reference to Their Nitrogen and Calcium Content, THE JOURNAL A. M. A., this issue, p. 1743.

ing at most a few pounds. Incidentally, it is noted that some of the green edible parts contain not insignificant quantities of calcium, an essential element which is ordinarily derived most readily in abundance from milk and milk products. For example, Swiss chard and spinach may contain more than 1.25 per cent. of calcium; cabbage and lettuce may furnish more than 0.5 per cent. As the requirement of lime for an adult man has been placed at somewhat less than 0.5 gm. a day, the small contributions from liberal quantities of such green vegetables may not be negligible, provided they are physiologically available in these products. This remains for the most part to be ascertained by actual utilization experiments.

Current Comment

VOCATIONAL REHABILITATION OF THE DISABLED SOLDIER

THE JOURNAL has frequently stated that the most important future work connected with the war is the rehabilitation and placement in a vocation of the disabled. It has stated that this work properly should come under the supervision and direction of the Surgeon-General of the Army or the Navy, as the case might be. Recently Senator Smith of Georgia introduced a bill which looked to the transference of some of this work to the Federal Board for Vocational Education. According to the original bill, this work, while theoretically under the supervision of the Surgeon-General, would in reality have been under the supervision of this Federal Board. This, of course, would have been a serious handicap to good work. As the bill passed the Senate, it was so modified as to make the measure a fairly satisfactory one. It must be recognized that an entire program which shall deal with the disabled soldier in an effective way must involve his medical and surgical treatment, whatever reeducation may be necessary, and his final placement or aftercare. While the Surgeon-General of the Army had facilities to do all of this work, and, in fact, had worked out a program, other federal agencies also were prepared to do part of the work supplementary to the medical and surgical treatment. The bill leaves the soldier, or sailor, under the entire authority of the War Department or Navy Department—that is, in the Medical Department of the Army or Navy—until discharged from the service. The Surgeon-General may deal with the soldier in an attempt to cure him, or as nearly so as the man's disabilities permit, without outside interference. The bill provides that no "vocational teaching shall be carried on in any of the hospitals until the medical authorities certify that the condition of the patient is such as to justify such teaching"; also that "the plan may be established between the War and the Navy Department and the Federal Board for vocational education whereby these departments will act in an advisory capacity with the board in the care of the health of the soldier after his discharge." Necessarily, if the program as outlined by the bill is to be carried out in a satisfactory manner, there must be hearty cooperation between the Federal Board and the Surgeon-Generals of the Army and of the Navy. There is no reason to suppose that this cooperation will not be entered into fully by these different interests, and to the ultimate, best advantage of the disabled soldier.

DOMINATION OF THE MEDICAL PROFESSION BY COMMERCIAL INTERESTS

Last week THE JOURNAL published a letter received by a physician in Milwaukee from a firm of lawyers representing the Farbwerke-Hoechst Company. In this communication the physician was threatened with suit if he published further unfavorable reports regarding that firm's preparation. Quoting from the attorneys' letter:

> "Mr. Metz directs us to inform you that the publication of this article and the statements therein were seriously damaging to the Farbwerke-Hoechst Company, and directs us to say further to you that he and the corporation will hold you personally responsible for any repetition, oral or written, of the same or of similar statements to the same effect."

We were under the impression that the time had passed when a proprietary medicine manufacturer would presume to threaten a physician for making an honest report of his results with any therapeutic agent. Such condition did exist once, before the Council on Pharmacy and Chemistry undertook its work. Now comes Mr. Metz to revive this relic of an historic but infamous period in the history of American proprietary medicine manufacturing. Even Mr. Vanderbilt regretted that he ever said "The public be d——." One of the elementary principles in the practice of medicine is that the individual physician shall let others know his results, whether good or bad, in any line of treatment. It is by such interchange of knowledge and experience that progress in medicine is possible. Yet Mr. Metz would interfere with the diffusion of such knowledge and experience when it applies to proprietary medicines. His legal threat against Dr. Sargent is 'terrorism" applied to the medical profession.

DRUGLESS HEALING INCLUDED IN THE TERM "PRACTICE OF MEDICINE"

A decision handed down a few months ago[1] by the Supreme Court of Illinois will help to do away with the confusion resulting from the licensure of cult practitioners. Under the claim that they were "not practicing medicine," osteopaths, chiropractors, Eddyites, naprapaths, physcultopaths, neuropaths and other healers are claiming or have secured the legal right to practice with lower educational qualifications than are required of physicians. But their claims are no longer valid — at least in Illinois. This decision states that the term "medicine" is not limited to substances supposed to possess remedial properties, but also means "the healing art"— the science of preserving health and treating diseases, no matter whether medicinal substances are used or not. But the deci-

1. Meaning of the Terms "Physician" and "Medicine," THE JOURNAL A. M. A., Oct. 27, 1917, p. 1465.

sion does not end there. It adds emphasis to the foregoing by the statement that any one engaged in the treatment of diseases for the purpose of curing them is a physician. The corollary is also true, therefore, that all who are practicing the healing art by whatever method should be required by law to possess the same educational qualifications. Incidentally, this decision specifies that any physician, regardless of the method of treatment followed, has the right to sign death certificates. This emphasizes all the more the necessity of adequate training for any one who has this authority. The objections that have been raised to the signing of death certificates by followers of the various cults has not been because of the particular form of treatment they emphasize, but because of their lack of a fundamental training in the essentials of medicine. Enforce the same qualifications alike for all who are legally authorized to treat the sick — the same as is done in practically every other country — and there will be no logical reason for restricting the practice of any one engaged in the healing art who, in the light of this decision, is a physician and is engaged in the practice of medicine.

NURSES NEEDED BY THE RED CROSS

On June 10 the American Red Cross will initiate a campaign to secure 25,000 nurses for the United States Army and Navy. It should be emphasized that the nurses needed are those from regularly established training schools, who are registered to practice nursing — not the voluntary nurses' aides nor untrained or so-called "practical" nurses. There is already a severe strain on the supply of registered nurses. This will be an additional strain. For this country to supply 25,000 in addition to those already in the military service — between 10,000 and 12,000 — means that physicians and patients will have to get along with fewer nurses. The physician who assigns a trained nurse to a maternity case must now realize that his patient will be able to have this nurse for only a part of the usual time — perhaps only for the day of delivery and three or four days following, and must substitute untrained nursing assistance, if even this is necessary. In ordinary cases of illness the "practical" nurse is often as satisfactory as the thoroughly trained, registered nurse. Incidentally, this forced economy in the use of nurses may not, after all, be an unmixed evil. Many of us have become so accustomed to this trained assistance that we seem to feel that we cannot get along with any other kind. It is an illustration of the old saying that what was a luxury yesterday is a necessity today. We have come to regard a trained nurse as a necessity in illness, in which, twenty-five years ago, even such a luxury as a "practical" nurse was undreamed of. But this is looking at the nurse solely in her narrow field. In recent years she has developed into more than the doctor's assistant; she has become an important, and in some respects a necessary, aid in carrying on the social work that has developed during the last decade or two. It is as visiting nurses — among the poor, in our schools and in infant-welfare work — and as public health workers — it is here that this great demand on account of the war will be most felt, for here the demand for nurses had already become greater than the supply. Physicians should realize that they can do as much as, if not more than, any other class in encouraging young women of proper training, who seem fitted temperamentally and otherwise for this work, to undertake the training courses now so readily available. There are many who have some ambition in this regard and who, with a little encouragement, would enter on this training. In any event, for the time being it must be borne in mind that nurses are one of the great needs in winning the war, and that it is our duty as physicians to aid in supplying this need.

GASTRIC SECRETION IN FEVERS

Ordinary clinical observation is frequently sufficient to afford unmistakable evidence of defective alimentation in the course of febrile disease. Naturally, the stomach and its functions have received a great deal of attention because they are relatively easy to investigate. Observers agree that there are a diminished gastric secretion and a lowered acidity in fevers; but whether the factors involved in this outcome are partly or entirely of a nervous character, as some persons have believed, or whether some chemical agency in the work of the gastric glands is concerned has never been established. We may thus still ask, as one group of investigators have formulated the question, Does the fever or temperature elevation complex abolish the psychic factor, impair the function of the hormones that provoke the secretion, or depress the gastric cells directly? From recent experiments by Meyer, Cohen and Carlson[1] at the Hull Physiological Laboratory of the University of Chicago, an answer to such queries now seems possible. The experiments indicate, so far as studies on suitable animals are available to give an answer, that during fever gastric secretion is diminished in volume and in total and free acid. The percentage of chlorids is constant or only slightly reduced, and pepsin is relatively increased. The secretion is ropy and mucous in character. The discovery that gastrin, the specific hormone that promotes gastric secretion, can bring its effect about after subcutaneous injection, and under conditions in which psychic factors cannot come into play,[2] makes it possible to distinguish between such factors and chemical effects on the stomach in febrile conditions. Gastrin, which is now believed to exert a direct action on the cells of the gastric glands, will not induce a secretion of gastric juice during typical fever. Furthermore, it will not act during a condition of elevation of temperature brought about by excessive external heat. The fact that the latter, when sufficient to induce a temperature elevation of from 2 to 4 F., will cause the same changes in gastric juice as are produced by fever, points to the heat itself as the most prominent causal agency in the disorders of secretion induced by fever. The theory of the Chicago physiologists is that the

1. Meyer, Jacob; Cohen, S. J., and Carlson, A. J.: Contribution to the Physiology of the Stomach, XLVI, Gastric Secretion During Fever, Arch. Int. Med., March, 1918, p. 354.
2. Keeton and Koch: Am. Jour. Physiol., 1915, 37, 481.

most important feature in the alteration is a depression of the gland cells. These cell changes, they believe, are transitory in character, and are probably in the nature of a cloudy swelling. The further suggestion is made that, during fever, toxins are perhaps elaborated having a direct depressor action on the cells of the stomach so that they fail to react to the secretory nerve impulses and to the secretagogues. If this is true, a comparable inhibitory or depressive effect on other glandular cells may likewise be expected to occur and thus still further aggravate the alimentary difficulties of the febrile patient.

GESTATION AND LACTATION

It has been believed among the laity as well as by a few physicians that pregnancy and lactation are incompatible and that "the pregnant woman must wean her child because of the marked influence which pregnancy exerts on the composition of milk." If we seek for the origin and ask regarding the validity of this assumption, dependable facts are not easy to find. There are reports to the effect that children nursing pregnant mothers tend to exhibit symptoms of indigestion and impaired nutrition. These phenomena are attributed to the scanty flow of milk under the conditions stated and to a possible alteration in its quantitative make-up. In the case of cows, the problem here presented ought to be open to solution from an experimental standpoint, because nearly all of these dairy animals are bred at some stage of their lactation period. The studies of Palmer and Eckles[1] of the Department of Dairy Husbandry at the University of Missouri have led them to the conclusion that gestation does not exert any direct effect on the composition and properties of cow's milk, but that gestation may affect the composition indirectly by hastening the close of lactation, which is the important factor involved in the changes in the composition of milk as lactation advances. An elaborate series of analyses of the milk of two lactating women indicates, further, that under normal conditions gestation exerts no influence on the composition of mother's milk, but that it may greatly hasten the close of lactation with the changes in the composition of the milk which accompanies it if lactation is sufficiently advanced when the period of gestation begins. Despite the fact that disturbances in the health of the children nursed by these pregnant mothers were never noted, Palmer and Eckles frankly admit, in view of the limited data still available, that the whole question is worthy of more extended study, particularly with regard to the disturbances in the health of the child which have been mentioned as accompanying pregnancy in the case of the mother. They add that the variations in the composition of human milk, the factors that contribute to these variations, and the relation of these variations to the health and nutrition of the child have not received the attention they deserve. Similar information in regard to cow's milk is much more extensive at present. Many opinions regarding the extent of the variations to which the composition of cow's milk is subject, which were formerly held by many persons, have been disproved, but are still regarded as being true for human milk. No doubt, Palmer and Eckles conclude, many of these opinions are equally unfounded for human milk; but the experimental data are not available to disprove them.

1. Palmer, L. S., and Eckles, C. H.: The Influence of the Stage of Gestation on the Composition and Properties of Milk, Jour. Dairy Sc., 1917, 1, 185.

IS SALICYLIC ACID EXCRETED AS SALICYLURIC ACID?

When benzoic acid is introduced into the organism it is excreted in combination with glycocoll as hippuric acid (benzoyl glycocoll). This well established fact has long been cited as an evidence of the synthetic capacities of the body, and further as an illustration of its detoxicating devices; for, by conversion to hippuric acid, benzoic acid becomes comparatively inert to living tissues. Many grams of benzoates — more than an ounce — can easily be converted in this way. An analogous reaction has also been believed to occur when the closely related hydroxybenzoic acid, salicylic acid, finds its way into the circulation. The salicyluric acid (salicyl-glycocoll) is said to occur in urine to the extent of about 80 per cent. of excreted salicyl in man after the administration of salicylates. Hanzlik,[1] of the Pharmacologic Laboratory of Western Reserve University, has found, however, that the methods which have been used heretofore for isolating what was supposed to be salicyluric acid are inadequate. Even when applied to salicyl urines they do not yield any notable quantity of a pure product of the character expected. From this it accordingly appears improbable, as Hanzlik argues, that salicylates are conjugated with glycocoll and converted into salicyluric acid in the human organism. The products hitherto interpreted as salicyluric acid have presumably been more or less impure salicylic acid that had been imperfectly separated in the process of isolation. These few conclusions do something more than teach us that the salicylates are excreted, in good part at least, unchanged. They warn against the folly of transmitting from one edition of a textbook to its successors, through an entire generation, reputed discoveries based on slender evidence.

1. Hanzlik, P. J.: The Salicylates, IX, The Question of Salicyluric Acid in Salicyl Urines, Jour. Pharmacol. and Exper. Therap., 1917, 10, 461.

Slicing the Patella.—H. Spitzy recommends sawing the patella through into halves, nearly parallel to the surface, to obtain ample access to the joint. By this means the ligament attached to the sawed off upper half of the patella is left undisturbed, while the quadriceps tendon attached to the lower half is also left unmolested, and yet the two halves can be drawn apart, leaving the joint amply exposed below. When the operation is completed, the halves of the patella are superposed and sutured together with a circular suture embracing both capsule and periosteum. The *Correspondenz-Blatt* adds in its summary from the original article in the *Münchener medizinische Wochenschrift*, No. 35, 1917, that Spitzy has applied this method in two cases with most excellent results, and has also used the same technic for the elbow, sawing off a slanting slice of the olecranon without molesting the triceps tendon.

Association News

THE CHICAGO SESSION

PROGRAM OF MEETINGS

The annual session of the American Medical Association convenes Monday, June 10, with the opening meeting of the House of Delegates at 10 a. m. at the home of the Association at 535 North Dearborn Street. Meetings of the House of Delegates will continue throughout Monday and Tuesday. The General Meeting which constitutes the opening exercises of the Scientific Assembly will be held at 8:15 p. m., Tuesday, June 11. The various sections of the Scientific Assembly will meet Wednesday, June 12, at 9 a. m., continuing throughout Wednesday. Practically all of the sections will combine on Thursday in the meetings of the Section on Miscellaneous Topics in the Auditorium Theater, beginning at 9 a. m. This meeting will be devoted to consideration of reconstruction and rehabilitation of the disabled soldiers. The Scientific Assembly will continue throughout Friday for most of the sections. On Wednesday evening, June 12, at 8:30, the military medical meeting takes place in the Medinah Temple. At this meeting the speakers will be representatives of the Medical Corps of the allied nations. On Thursday evening at 8:30 a patriotic meeting will be held in the Auditorium Theater. There will also be meetings devoted to consideration of the relations of physicians to the selective service to be held Thursday afternoon and Friday morning at the Studebaker Theater. The program of these meetings was published last week.

The registration, scientific and commercial exhibits will be open from 8:30 a. m. until 5:30 p. m., Monday, Tuesday, Wednesday and Thursday, June 10 to 13; and from 8:30 a. m. until 12 noon on Friday, June 14.

THE BRITISH DELEGATES TO THE ANNUAL SESSION

Sir James Mackenzie, Sir Arbuthnot Lane and Col. Herbert Bruce, delegates from the British Medical Association to the meeting of the American Medical Association, arrived in New York City on May 31. They were met and welcomed by Dr. Wendell C. Phillips, member of the Board of Trustees, and by Dr. Alexander Lambert, chairman of the Judicial Council in behalf of the American Medical Association. On June 2 they left for Washington, D. C., where they remained until June 4 when they departed for Cincinnati to attend the annual session of the American Surgical Association. They will arrive in Chicago, Sunday, June 9, for the annual session of the American Medical Association from June 10 to 14, and will be at the Blackstone Hotel.

MILITARY MEDICAL HEADQUARTERS

Room L on the mezzanine floor of the Hotel Sherman, adjoining the Scientific Exhibit, has been reserved as headquarters of the Medical Department of the Army. A representative from the Medical Department of the Army will be at this room every day, commencing Tuesday, prepared to give information concerning the service. Application blanks, circulars of information, etc., can be had there; and arrangements can be made for the examination of those who desire to apply for commission in the Medical Reserve Corps.

LADIES' ENTERTAINMENT

In addition to the announcements already made, arrangements have been made for a trip to the Great Lakes Training Station on Wednesday afternoon. The occasion will be the dedication of the new Red Cross building at the training station. The train will leave the Northwestern Station at 1:30. Members of the Women's Committee will be at this station to accompany the visiting ladies to the Great Lakes Training Station, where they will be guests of the training station.

MEETINGS DURING THE ANNUAL SESSION

Chicago Pediatric and Infant Welfare Society

A joint meeting of the Chicago Pediatric and Infant Welfare Societies will be held June 10 at the City Club of Chicago, 315 Plymouth Court. Addresses will be given by Dr. William Palmer Lucas on "Child Welfare Work in France" and by Dr. Paul Armand DeLille on "The Infant Mortality Situation in France."

Chicago Ophthalmological Society Banquet

The Chicago Ophthalmological Society will give a banquet and entertainment in honor of the officers of the Section on Ophthalmology of the American Medical Association in the East Room of the Hotel La Salle, Chicago, at 6:30 o'clock, Tuesday evening, June 11. Tickets for the banquet may be procured from the secretary of the Chicago Ophthalmological Society, Dr. Alfred N. Murray.

Medical Mobilization and the War

An English Appreciation of American M. R. C. Officers

Colonel Furbush, of the Surgeon-General's Office, sends the following excerpts from a letter which he received from Lieut.-Gen. T. H. Goodwin, Director-General of the British Medical Service. The letter is dated May 8:

"This is only a short line as I am extremely busy. I would like to give you an extract from a letter which I have just had from G. H. Q. in France. It runs as follows:

'The casualties amongst Medical Officers during the week have been 23, of whom 3 were killed. 5 of the casualties were amongst Medical Officers of the U. S. A. attached to British battalions or field ambulances, 4 being "gas" casualties and one "missing" casualty. The work of these U. S. A. Medical Officers deserves special recognition. They have been invaluable and have worked under the most trying conditions and with great gallantry.'

"I thought you would like to know this, and I should be much obliged if you would show it to the Director-General. You are, of course, entirely at liberty to make it known in whatever way you wish, in fact, I should be glad if you would do so for I feel strongly how much we owe to your country, and I should like your people to know how well your Medical Officers are doing. . . ."

General—then Colonel—Goodwin, it will be remembered, was in this country for over a year, and a large number of our readers will have personal remembrance of him.

It is gratifying to read the message General Goodwin sends. It must be borne in mind that the letter from which General Goodwin sends the quotation was not written with the idea that it would be presented to American readers, but for "home consumption."

Moral Welfare of Military Establishments to Be Further Safeguarded

The Secretary of War was authorized and directed by the provisions of an act to authorize the President to increase temporarily the Military Establishment of the United States, approved, May 18, 1917, to do during the present war everything he might deem necessary to suppress and prevent the keeping or setting up of houses of ill fame, brothels, or bawdy houses in proximity to military stations, and certain penalties were prescribed for the violation of such rules as the Secretary might promulgate to carry into effect the provisions of the act. It has been found necessary, however, to seek further legislation on the subject, and by a bill passed by the United States Senate on May 17, it is provided that during the present emergency it shall be unlawful, within such distance of any military establishment as the Secretary of War shall determine to be needful, to engage in prostitution, or to aid or abet prostitution, or to procure or solicit for purposes of prostitution; or to keep or set up a house of ill fame, or

bawdy house; or to receive any person for purposes of lewdness, assignation, or prostitution into any vehicle, conveyance, place, structure, or building, or to permit any person to remain for purposes of prostitution in any conveyance, place, structure, or building. Punishment for violation of this law is by a fine of not more than $1,000, or by imprisonment for not more than one year, or by both; and persons subject to military law may be punished as provided in the Articles of War. This bill now goes to the House of Representatives for consideration.

Personnel of the Medical Department

For the week ending May 31, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 868, including 1 major-general, 65 colonels, 110 lieutenant-colonels, 298 majors and 394 lieutenants.

MEDICAL RESERVE CORPS: 19,226, including 1,388 majors, 4,983 captains and 12,855 lieutenants. On active duty: 17,343, including 1,320 majors, 4,727 captains and 11,296 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,199, including 18 lieutenant-colonels, 249 majors, 150 captains and 782 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 151, including 5 brigadier-generals, 16 colonels, 122 lieutenant-colonels and 8 majors.

The discharges to date are:

Causes	Number M.R.C.	Number M.C.N.G.
Physical disability	670	52
Inaptitude	262	20
Other branches of service	209	72
Resignations	132	33
Domestic troubles	59	0
Needed by community	50	0
Deaths	80	5
Dismissals	10	3
Duty completed	1	0
No reasons given	14	0
	1,767	185

New Army Appropriations

In the new Army appropriation bill, reported by the House Committee on Military Affairs on May 25, the amount indicated for the medical and hospital department of the Army is $267,408,948. In addition there is included for construction and repair of hospitals, $60,000,000; for hospital care in the Canal Zone, $60,000; for the Army Medical museum and Library, $25,000. Among the large items in the bill are those for pay of the Army, $1,587,318,495.14; for transportation of the Army and supplies, $1,532,606,103, and for clothing and camp garrison equipage, $1,230,190,089.

Federal Control of Venereal Diseases Proposed

Action by the United States government to prevent the spread of venereal diseases is proposed in two bills recently introduced into Congress, going far beyond anything heretofore contemplated. Both bills are carefully drawn and bear internal evidence of being the results of careful studies of the situation in so far as concerns the possibilities of federal control. One bill proposes direct action by the Treasury Department, through the United States Public Health Service. The other provides for the creation of an Interdepartmental Social Hygiene Board, to operate primarily through subsidies granted by it to state boards and departments of health, and to universities, colleges, and other suitable institutions.

The bill proposing direct action through the Treasury Department, operating through the Bureau of Public Health, creates in that bureau a division of public health, under direction of an assistant Surgeon-General, and imposes on the bureau the following duties:

(a) To study, investigate and conduct research work into the cause, prevention and treatment of venereal diseases; (b) to construct, acquire, purchase, lease or otherwise obtain internment hospitals, and to equip, manage, conduct and operate the same; (c) to administer and apply medical treatment to persons afflicted with venereal diseases while in said internment hospitals, and to issue orders or discharge therefrom upon cure; (d) to cause the arrest and prosecution of immoral persons afflicted with venereal diseases who go or attempt to go from one state, district or insular possession of the United States to another, and to cause the arrest and prosecution of persons who aid, assist or connive at the same; (e) to receive at such internment hospitals and to have authority and custody thereof for the purpose of examination or medical observation or treatment, all immoral persons afflicted or thought to be afflicted with venereal diseases, who are delivered to or turned over to the officer in charge of any such internment hospital by any state, county, city or town board of health or health department, or by any civil or military court, sheriff, police or peace officer, or by the military or naval authorities of the United States; (f) to detain for purposes of medical observation or examination and treatment any immoral person going or attempting to go from one political division to another, and to commit any such person afflicted with venereal disease to an internment hospital, and to administer medical treatment to such person, and to have custody of him; and (g) to cooperate with state, county, city and town boards or departments of health in the prevention and treatment and cure of venereal diseases, and to prevent the spread thereof.

The bill makes it unlawful for any immoral person afflicted with syphilis, gonorrhea, chancroid or other venereal disease capable of being communicated from one person to another to go or attempt to go from one state, district or insular possession of the United States to another, and provides a penalty of a fine not less than $500 nor more than $1,000, or imprisonment for not less than six months nor more than one year, or by both fine and imprisonment. The term "immoral person" is defined to include any bawd, prostitute or female who practices sexual intercourse out of wedlock for or without hire or thing of value; or any man who consorts with, associates or companions with any immoral woman, or who loiters about or frequents any bawdy house or brothel, or any bawd or any lewd or licentious person.

The second of the bills referred to above creates a board to be known as the Interdepartmental Social Hygiene Board, to consist of the Secretary of War, the Secretary of the Navy, and the Secretary of the Treasury, "as ex officio members," and of the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Public Health Service, or of persons whom the secretaries of the Army, the Navy, and the Treasury may respectively designate; and it empowers the board

(a) To recommend rules and regulations for the expenditure of moneys allotted to the states under authority of the act; (b) to select institutions and to fix allotments to each institution to whom money may be allotted under the act; and (c) to recommend to the Secretary of the Treasury, the Secretary of War and the Secretary of the Navy such general measures as will promote correlation and efficiency in carrying out the purposes of the act by their respective departments. To carry out the provisions of the act recited above, "to be expended under the joint directions of the Secretary of War and the Secretary of the Navy," an appropriation of one million dollars is recommended, to be in addition to other appropriations made by the respective states, and in addition to funds received from any other sources of a more general character. An additional million dollars is recommended to be paid to the states for the use of their respective boards or departments of health in the prevention, treatment and control of venereal diseases, to be allotted to the states in accordance with the rules and regulations prescribed by the Secretary of the Treasury, allotments after the year ending June 30, 1919, to be conditioned upon the appropriation of like amounts by the states. An appropriation of one hundred thousand dollars is called for, to be paid to such universities, colleges or other suitable institutions as in the judgment of the Interdepartmental Social Hygiene Board are qualified for scientific research for the purpose of discovering more effective medical measures for the prevention and treatment of venereal diseases; and an additional appropriation of three hundred thousand dollars is proposed, to be paid to similar institutions, for the purpose of discovering and developing more effective educational measures in the prevention of venereal diseases and for the purpose of sociologic and psychologic research related thereto.

Both bills have been referred to appropriate committees.

Nonphysical Standards for Flyers

Asserting that the establishment of a difficult and inelastic schedule of physical requirements for candidates for the aviation service is wrong in principle and has deprived the service of many good flyers, Parsons in the *U. S. Naval Bulletin* (April, 1918) gives an account of tests now applied in the selection of aviators which tend toward the establishment of what he calls "nonphysical standards." He says that formerly "We thought that to become a successful aeronaut was something that could be attained by the one in a thousand, the true hero, endowed with almost miraculous skill and daring. It was because this view was generally held, perhaps, that we adopted such a high set of physical standards in our selection of aviation candidates." Experience has taught that almost any young man with a reasonable amount of common sense, the usual amount of "nerve" possessed by most young Americans, and a keen desire to be an aviator, can become a good flyer in a very few hours. It is questionable, he says, whether a great deal more actual skill is required in learning to fly than in learning to drive an automobile. The most important qualities are "nerve" and lack of fear of the air. Good physical health is of course desirable, but he calls attention to the absurdity of rejecting men, as has been done in instances which he mentions, for lacking a quarter inch of the scheduled figure in chest expansion, or for having flat feet, which he does not use for air navigation purposes, or for being slightly deaf, when the roar of the plane engines while in the air makes it impossible for one with the most acute hearing to hear anything else. The Navy has already rejected hundreds of applicants because of trivial minor defects, most of whom, it is believed, could become successful aviators. In fact, many of them were

accepted in the Canadian Royal Flying Corps where they have made good.

Many cases of "perfect health" men cannot learn to fly, and many cases of "not perfect health" men have become famous flyers, so that mere physical standards are far from infallible. It requires "something else" to make a flyer, and in determining what that is flight instructors have been appealed to. While it is difficult to determine and cannot be determined definitely what that "something else" is, the instructors after discussion have unanimously agreed that a flyer should be cool under strain, be dependable at the critical moment, be mentally and physically alert, lack any inherent fear of the air, and be persistent and persevering in the ambition to become a successful aviator. It is also believed that he should be intelligent, athletic and endowed with good muscular coordination, possessed of a keen sense of equilibrium and be a good judge of velocity and distances. There was no agreement as to whether extreme stolidity or great nervous energy was preferable in an aviator, expertness being found in both temperamental classes. Purely physical qualifications were not given much weight, even the question of exceptional vision. Whereas one naval examiner was much troubled because a candidate had vision of 16/20 in one eye, it is known that one of the greatest British flyers has but 4/20 vision (uncorrected) in one eye and not a great deal more in the other. The instructors were all agreed that a skilful motorcyclist or automobile driver always makes a good aviator. Parsons describes in more or less detail tests devised by Drs. L. E. Troland and H. E. Burtt of Harvard Psychological Laboratory for testing candidates for aviation as to "coolness," alertness, muscular coordination, judgments of distances, powers of observation, unusual fear of flying, equilibrium reaction time, intelligence, etc.

For Vocational Rehabilitation of Soldiers and Sailors

Senator Hoke Smith's bill for the vocational rehabilitation of soldiers and sailors has passed the Senate without a dissenting vote, after some amendments desired by the Surgeon-General. It is now in the House. As it passed the Senate the bill provides that every person who is disabled under circumstances entitling him after discharge from the military or naval forces to compensation under the War Risk Insurance law, and who after his discharge, in the opinion of a board created for the purpose, is unable to carry on a gainful occupation, or to resume his former occupation, or to enter on some other occupation successfully, shall, when feasible, be furnished a course in vocational rehabilitation as prescribed by the board. The disabled person during the time of his rehabilitation and instruction will be paid monthly an amount equal to the amount of his last pay while in active service. Instruction is to be made available without cost. Section 4 relates to the powers of the board in preparing and equipping itself for such instruction and carrying on the courses, and for making all regulations, etc., necessary for the proper carrying out of the purposes of the bill. Section 5 relates to the duty of the board to make studies, investigations and reports regarding vocational rehabilitation and the placement of persons rehabilitated in suitable gainful occupations, which studies, investigations and reports and their carrying out may be done and made in cooperation with other departments and bureaus of the government or with such other public and private agencies as may be deemed advisable.

Section 6 provides that all medical and surgical or other work or treatment necessary to give functional and mental restoration to disabled persons prior to their discharge from the naval or military forces shall be under the control of the War Department and the Navy Department, respectively. After the men are discharged from the military or navy service the training will be under the Federal Board for Vocational Education. This board already starts and has in its personnel the secretaries of commerce, labor and agriculture and the commissioner of education, with three additional men not in official position. The War and Navy Departments are to continue to act in an advisory capacity to the board, and while still in the service the soldiers and sailors will be under the authority of the War and Navy Departments, and the Surgeon-General may deal with them, in his attempt to cure them from their disabilities, without interference from any one.

Section 7 empowers the board to receive gifts and donations from public or private sources which shall be paid into the treasury to constitute a special fund to carry out the purposes of the act. Section 8 provides for appropriations to carry out the purposes of the bill and the manner in which the appropriations shall be apportioned to those purposes.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending May 24, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

		Last Week
All Troops	1,068.1	1,106.2
Divisional Camps	764.5	736.
Cantonments	1,200.9	1,227.2
Departmental and Other Troops	1,109.1	1,177.3

2. NONEFFECTIVE RATE PER 1,000 ON DAY REPORT:

All Troops	39.8	39.5
Divisional Camps	33.4	33.
Cantonments	46.4	44.7
Departmental and Other Troops	35.8	38.4

3. ANNUAL DEATH RATE PER 1,000 (disease only):

All Troops	5.7	6.3
Divisional Camps	1.9	3.1
Cantonments	9.0	9.9
Departmental and Other Troops	4.1	4.2

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MAY 24, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal: Total	Venereal: New Infections	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Beauregard	5	8	23	60	5	1	..	..	0	1,126.4	48.9
Bowie	4	..	2	24	22	..	..	..	0	989.4	28.8
Cody	5	..	..	6	..	..	..	..	1	531.3	23.2
Doniphan	..	1	..	12	..	..	..	..	0	2,4 6.3	98.1
Fremont	6	..	..	34	19	13	..	3	2	1,689.2	34.6
Greene	..	..	..	6	4	8	..	..	1	816.4	29.1
Hancock	..	..	..	51	..	..	1	..	1	1,071.9	55.4
Kearny	2	..	1	2	..	2	1	..	3	583.0	27.4
Logan	..	..	..	13	1	2	..	..	0	399.3	26.6
MacArthur	..	..	..	..	..	..	..	..	0	723.8	38.4
McClellan	1	..	1	20	14	2	..	..	0	1,248.8	27.6
Sevier	10	..	..	33	11	4	..	..	2	498.4	37.4
Shelby	1	6	3	12	4	1	1	..	3	1,020.9	41.2
Sheridan	2	..	4	35	14	..	..	..	1	514.4	20.0
Wadsworth	1	..	..	15	..	15	1	..	1	1,152.5	56.9
Wheeler	2	..	..	21	6	..	..	..	1	572.0	35.9
Custer	10	..	..	117	4	1	..	..	4	672.4	24.4
Devens	27	3	..	98	6	25	..	..	4	686.0	26.0
Dix	2	2	1	63	4	9	1	4	2	893.7	39.2
Dodge	33	..	..	97	..	10	1	13	12	1,381.9	78.0
Funston	13	..	1	178	63	5	3	3	3	1,681.1	89.7
Gordon	24	..	2	97	2	41	2	..	14	2,286.1	78.2
Grant	4	..	..	14	..	5	1	8	4	437.7	23.9
Jackson	17	1	2	81	..	30	2	..	15	2,580.9	64.6
J. F. Johnston	5	..	1	43	23	5	..	..	3	849.9	37.0
A. A. Humphreys	11	..	..	11	7	11	1	..	2	899.1	31.8
Lee	..	..	1	123	1	11	..	..	2	1,092.7	61.7
Lewis	13	..	..	58	4	7	..	3	1	777.7	32.5
Meade	6	..	..	10	6	4	1	1	2	982.5	31.5
Pike	10	..	3	71	14	17	3	..	13	1,564.4	63.6
Sherman	2	..	..	61	5	14	1	5	4	1,011.6	43.5
Taylor	11	..	..	4	..	14	1	..	3	911.9	56.0
Travis	33	1	5	50	3	20	..	1	11	2,345.1	49.0
Upton	8	..	..	142	25	..	..	2	2	843.8	40.7
Northeastern Dept.	..	..	..	11	1	3	1	..	0	602.8	27.2
Eastern Dept.	..	..	1	22	12	4	..	..	3	671.8	28.9
Southeastern Dept.	1	..	..	62	35	9	..	..	3	968.1	31.9
Central Dept.	..	..	..	4	3	10	..	4	0	1,166.0	27.0
Southern Dept.	19	3	3	156	37	70	1	11	6	1,166.6	23.7
Western Dept.	..	..	..	31	7	12	..	3	1	722.2	23.2
Aviation S. C.	9	..	3	124	..	14	2	4	11	1,134.5	31.4
Akatraz, D. P.	..	..	..	1	..	..	..	..	0	479.5	18.4
Columbus Bks.	1	..	..	8	2	..	..	1	0	643.0	21.1
Depot, Prov. Corps and Army Troops	1	..	3	4	..	..	..	..	1	1,174.9	46.6
Edgewood - Aberdeen	..	..	..	..	..	1	..	..	0	266.5	11.1
El Paso	..	1	..	2	1	..	..	..	0	586.5	19.1
Hoboken	7	..	..	165	11	12	..	3	4	979.2	56.3
Holabird	..	..	..	3	0	..	..	..	0	610.8	5.9
Jefferson Bks.	..	..	1	189	3	5	..	..	1	1,182.2	98.1
Leavenworth, D. B.	1	..	..	..	..	..	..	..	2	1,168.2	37.6
Fort Logan	1	..	..	5	..	..	..	3	0	1,233.3	70.0
Fort McDowell	2	..	..	43	..	1	..	..	0	2,437.5	80.5
Newport News	10	..	2	99	34	8	..	3	1	990.1	43.1
Raritan	..	..	..	..	..	..	..	..	0	489.6	27.7
Fort Slocum	2	..	..	26	..	1	..	..	0	2,311.3	44.4
Springfield Armory	..	..	..	..	..	..	..	..	0	276.6	21.3
Fort Thomas	1	..	..	17	..	..	..	..	1	2,382.7	92.0
Watervliet	..	..	..	..	..	6	..	..	0	536.0	51.3
West Point	..	..	..	2	..	..	..	..	0	801.4	11.7
Natl. Guard Depts.	..	..	..	15	7	2	..	1	1	.....	....
Natl. Army Depts.	9	1	1	681	158	30	..	8	4	.....	....
Total	352	24	65	3,145	565	456	24	84	161	1,068.1	39.8

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending May 24, 1918	Department and Other Troops, Week Ending May 24, 1918	Divisional Camps, Week Ending May 24, 1918	Cantonments, Week Ending May 24, 1918	Expeditionary Forces, Week Ending May 16, 1918
Pneumonia	14.4	8.5	6.9	22.3	12.8
Dysentery	0.98	0.6	2.6	0.4	0.3
Malaria	2.86	1.6	6.0	1.6	1.0
Venereal	120.0	176.2	69.0	122.1	37.8
Paratyphoid	0.0	0.0	0.0	0.0	0.0
Typhoid	0.1	0.1	0.0	0.2	0.0
Measles	16.27	21.0	8.7	21.2	12.3
Meningitis	0.38	0.4	0.5	1.5	1.4
Scarlet fever	3.4	4.7	4.7	0.38	5.7

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Bowie, Fort Worth, Tex., as assistant to camp surgeon, from Camp Sherman, Major JOHN A. BURKET.

To Camp Crane, Allentown, Pa., for duty, from the Surgeon-General's Office, Major STEPHEN H. SMITH; from Walter Reed General Hospital, Major EDGAR A. BOCOCK, Lieut. PAUL E. McNABB.

To Camp Custer, Battle Creek, Mich., as assistant to camp surgeon, from Biltmore, Major EDWARD A. NOYES.

To Camp Devens, Ayer, Mass., for sanitary inspection, and on completion *to his proper station*, Col. HOWARD DEANE C. HOWARD, Base hospital, from the Surgeon-General's Office, Lieut.-Col. LEARTUS J. OWEN.

To report as assistant to camp surgeon, from Fort McHenry, Major HARRY R. BEERY.

To Camp Lee, Petersburg, Va., for sanitary inspection, and on completion *to his proper station*, Col. ALBERT H. TRUBY. *To Camp Lee*, Petersburg, Va., *Camp Wadsworth*, Spartanburg, and *Camp Sevier*, Greenville, S. C., *Camp Gordon*, Atlanta, *Camp Wheeler*, Macon, and *Camp Hancock*, Augusta, Ga., for duty, and on completion *to his proper station*, Lieut.-Col. EARL H. BRANS.

To Camp Meade, Annapolis Junction, Md., for temporary duty, from Camp Wheeler, Lieut.-Col. GEORGE F. KEAN.

To Camp Pike, Little Rock, Ark., as assistant to the camp surgeon, from Columbus Barracks, Major GEORGE D. CHUNN.

To Camp Sherman, Chillicothe, Ohio, for temporary duty, from Camp Dix, Lieut.-Col. SAMUEL S. CREIGHTON. *To Camp Sherman*, Chillicothe, Ohio, *Camp Zachary Taylor*, Louisville, Ky., *Camp McClellan*, Anniston, and *Camp Sheridan*, Montgomery, Ala., *Camp Gordon*, Atlanta, *Camp Wheeler*, Macon, and *Camp Hancock*, Augusta, Ga., *Camp Sevier*, Greenville, and *Camp Wadsworth*, Spartanburg, S. C., for sanitary inspection, and on completion *to his proper station*, Lieut.-Col. FRANK W. WEED.

To Camp Travis, Fort Sam Houston, *Camp Bowie*, Fort Worth, *Camp MacArthur*, Waco, and *Camp Logan*, Houston, Tex., *Camp Beauregard*, Alexandria, La., and *Camp Shelby*, Hattiesburg, Miss., for sanitary inspection, and on completion *to his proper station*, from Fort Sam Houston, Col. WILLIAM F. LEWIS.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Sevier, Lieut.-Col. CONDON C. McCORNACK.

To Camp Zachary Taylor, Louisville, Ky., as assistant to camp surgeon, from Columbus Barracks, Major HARRY L. ARNOLD.

To Cape May, N. J., for duty, and on completion *to his proper station*, Col. WALTER R. PARKER.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Custer, Lieut. JOHN E. KILEY; from Camp Dodge, Lieut. GEORGE W. SNYDER; from Camp Grant, Lieut. ALLEN R. HOWARD.

To Fort Leavenworth, Kansas, for duty, from Army Medical School, Lieut. WILLIAM S. McCANN.

To Fort Oglethorpe, for duty, and on completion *to his proper station*, Col. CLAUDE E. MORGAN.

To Mineola, L. I., N. Y., for duty, and on completion *to his proper station*, Col. THEODORE C. LYSTER.

To New Haven, Conn., for duty, and on completion *to Washington, D. C.*, Lieut.-Col. CHARLES F. CRAIG.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to their proper stations* from Camp Shelby, Capts. DAVID L. HILL, JOHN McCLELLAND, OTIS McQUOWN, Lieuts. FRED E. HICKSON, DORSEY M. HINES, RODNEY N. TROUTMAN, ALLEN H. WALKER, ADRIAL C. WEAKLEY.

To New York City, for duty, and on completion *to his proper station*, Lieut.-Col. JAMES BORDLEY, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Meade, Lieuts. CEDRIC E. FILKINS, ROY T. HASKELL, JOHN C. WOODLAND; from Camp Sheridan Capt. MORSE F. OSBORN, Lieuts. FRED L. EYESTONE, GUY G. GIFFEN, MATHEW C. HUUTER, EDWARD J. KENNEDY, P. C. PENNINGTON, EDWARD E. SMITH, FORREST R. STEWART; from Camp Wheeler, Majors CORNELIUS F. HOLTON, WILLIAM C. MILES, Capt. ROBERT B. BEARD.

To Philadelphia, Pa., for duty, and on completion *to his proper station*, Col. REUBEN B. MILLER.

To Pittsburgh, Pa., Carnegie Bldg., for instruction and on completion *to their proper stations* from Camp Beauregard, Lieuts. RECTOR P. SHEETS, ASA C. WATSON.

To Plattsburg Barracks, N. Y., for inspection, and on completion *to his proper station*, from Fort Porter, Lieut.-Col. THOMAS D. WOODSON.

To Rockefeller Institute for duty, and on completion *to Washington, D. C.*, Major CARRALL G. BULL.

The following order has been revoked: *To Edgewood, Md.*, as camp surgeon, from San Francisco, Major LEO C. MUDD.

ORDERS TO OFFICERS OF MEDICAL RESERVE CORPS

Alabama

To Camp A. A. Humphreys, Accotink, Va., for duty, and on completion *to Camp Meade*, Lieut. BURTON F. AUSTIN, Mobile.

To Camp Crane, Allentown, Pa., base hospital, from Fort Logan, H. Roots; Lieut. CLAUDE C. McCLEAN, Birmingham.

To Camp Hancock, Augusta, Ga., base hospital, Capt. WILLIAM G. THIGPEN, Montgomery.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. JOHN D. DURDEN, Montgomery.

To Camp Lee, Petersburg, Va., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. JOSEPH W. HUGHES, Birmingham.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. MERCER HOWE, Elba.

To Camp Pike, Little Rock, Ark., as a member of the board examining the command for tuberculosis, from Fort Riley, Lieut. LLEWELLYN H. LEDBETTER, Goodwater.

To Fort Oglethorpe for instruction, Capt. E. LAURENCE SCOTT, Greenville.

To Hoboken, N. J., for duty, from Camp Dix, Capt., GEORGE C. KILPATRICK, Bayou Labatre.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Pike, Lieut. SOLON W. WRIGHT, Bessemer.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. HENRY G. WADDELL, Dadeville.

To Riverside, Calif., Signal Corps Aviation School, for duty, from Arcadia, Lieut. GUY E. STEWART, Attalla.

Arizona

To Fort Des Moines, Ia., base hospital, Capts. ALBERT L. GUSTETTER, Nogales; JOEL L. BUTLER, Tuscon.

To Fort Riley for instruction, Lieut. CHARLES L. HATHAWAY, Winslow.

To Lake Charles, La., S. C. A. School, for duty, Capt. EDWARD W. ADAMSON, Douglas.

To report by wire to the commanding general, Southern Department, for duty, Lieut. RICHARD McC. FRANCIS, Williams.

Arkansas

To Camp Crane, Allentown, Pa., base hospital, from Dansville, N. Y., Lieut. CARL S. BUNGART, Fort Smith.

To Camp Pike, Little Rock, Ark., base hospital, from Jefferson Barracks, Lieut. NILES E. MUMEY, Little Rock.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Logan*, Houston, Texas, base hospital, Lieut. JOHN L. SMILEY, Siloam Springs.

To Fort Thomas, Ky., for temporary duty, Capt. J. WILLIAM SCALES, Pine Bluff.

To Hoboken, N. J., for duty, from Camp Sevier, Lieut. JAMES W. BUTTS, Helena.

To New Orleans, La., Charity Hospital, for instruction, and on completion to Camp Beauregard, Alexandria, La., base hospital, Capt. JULIUS S. MOORE, Arkadelphia.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. JACOB B. HESTERLY, Prescott.

To San Antonio, Texas, United States Army School, for duty, from Houston, Lieut. JAMES F. HAYS, Russellville.

The following orders have been revoked: *To Camp Kelly*, San Antonio, Texas, for duty, from Camp MacArthur, Lieut. JAMES M. BEST, Monticello. *To Camp Pike*, Little Rock, Ark., base hospital, from Fort Riley, Lieut. THERON E. FULLER, Texarkana.

California

To Camp Dodge, Des Moines, Iowa, as member of board examining the command for tuberculosis, from Camp Kearny, Major RALPH L. BYRNES, Los Angeles. With the board examining the troops for cardiovascular diseases, Capt. BERTNARD SMITH, Los Angeles.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Kearny, Capt. HENRY S. KEYES, Los Angeles.

To Camp Kearny, Linda Vista, Calif., base hospital, Capt. JAMES W. HOUSTIS, Los Angeles; Lieut. FRANCIS S. COOK, Brentwood.

To Camp Lewis, American Lake, Wash., for duty, Lieut. JOSEPH H. SHAW, Santa Rosa.

To Camp MacArthur, Waco, Texas, with the board examining the command for tuberculosis, from Camp Kearny, Capt. CHARLES E. IDE, Redlands; Lieut. LESTER E. TRETHEWAY, French Camp.

To Fort McPherson, Ga., for duty, Major HARRY T. SUMMERSGILL, San Francisco.

To Fort Oglethorpe, Ga., for duty, from Fort Leavenworth, Major HARRY R. OLIVER, San Francisco. Base hospital, from Fort Leavenworth, Lieut. HERSEL E. BUTKA, Los Angeles. For instruction, Lieuts. WILLIAM L. DENTON, CLAIR WILSON, Los Angeles; from Chicago, Lieut. TRUSTEN M. HART, Los Angeles.

To New Haven, Conn., for duty, from Fort Oglethorpe, Major CHARLES J. HARBECK, Hayward.

To San Francisco, Calif., Letterman General Hospital, for duty, Lieut. VACLAV H. PODSTATA, Livermore.

To Washington, D. C., for temporary duty in the Surgeon-General's Office, Major HOWARD C. NAFFZIGER, San Francisco; from Camp Lee, Capt. ALBERT M. MEADS, Berkeley. For consultation, and on completion *to Lakewood, N. J.*, for temporary duty, from New York City, Capt. ERNEST W. CLEARY, San Francisco.

The following orders have been revoked: *To Camp Kearny*, Linda Vista, Calif., base hospital, Capt. GEORGE G. HUNTER, Los Angeles. *To Chicago, Ill.*, Northwestern University School of Medicine, for instruction, from Fort Riley, Lieuts. WALTER C. S. KOEBIG, JAMES H. McLAUGHLIN, Los Angeles; JOSEPH W. CRAWFORD, Sacramento.

Colorado

To Camp Hancock, Augusta, Ga., for duty, Lieut. FRED G. SWARTZ, Nederland.

To Camp Pike, Little Rock, Ark., base hospital Capt. EDGAR M. MARBOURG, Denver.

To Camp Travis, Fort Sam Houston, Texas, for duty, JOHN D. DAVIES, Alamosa.

Connecticut

To Camp Crane, Allentown, Pa., base hospital, from Camp Dix, Lieut. HARRY A. CONTE, New Haven.

To Camp Meade, Annapolis Junction, Md., for duty, Capt. CARL W. HENZE, New Haven.

To Camp Sevier, Greenville, S. C., to examine drafted troops and on completion *to his proper station*, from Camp Jackson, Lieut. ELMER T. SHARPE, Derby.

To Camp Shelby, Hattiesburg, Miss., for duty, from Camp Beauregard, Lieut. FREDERICK E. STOCKTON, Springdale.

To Camp Wheeler, Macon, Ga., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. ROBERT S. STARR, Hartford.

To Hoboken, N. J., for duty, Lieut. ARTHUR M. YUDKIN, New Haven; from Camp Devens, Capt. FRANK P. TODD, Danielson.

To New Haven, Conn., for duty, from Camp Sherman, Lieut. FRANK J. ROONAWNE, Hartford.

To New York City, Cornell Medical College, for instruction in military roentgenology, and on completion *to Hoboken, N. J.*, base hospital, from Camp Dix, Capt. EDWARD E. ROWELL, Stamford.

To Otisville, N. Y., for duty, from New Haven, Lieut. BERNARD C. MARANTZ, New Haven.

District of Columbia

To Army Medical School for duty, Capt. LEO. E. EVENS, Washington.

To Camp Hancock, Augusta, Ga., for duty, Capt. ALFRED GLASCOCK, Washington. With the board examining the command for nervous and mental diseases, Lieut. JOHN M. LADD, Washington.

To Camp Lee, Petersburg, Va., to examine the command for nervous and mental diseases, Lieut. JOSEPH H. TOOMEY, Washington.

To Hoboken, N. J., for duty, from Lakewood, Major WILLIAM C. MOORE, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Colonia, N. J.*, for duty, Capt. JOHN VAN RENSSELAER, Washington.

To Washington, D. C., for consultation and on completion *to his proper station*, from Camp Lee, Major JAMES F. MITCHELL, Washington. For duty, Major THOMAS E. NEILL, Lieut LEON A. MARTEL, Washington; from Walter Reed General Hospital, Capt. STUART G. JOHNSON, Washington.

Florida

To Camp Gordon, Atlanta, Ga., base hospital, from Camp Shelby, Capt. ARCHIE F. PARROTT, Jacksonville.

To Camp Jackson, Columbia, S. C., for duty, Lieuts. JAMES A. FORD, Arcadia; URBAN S. BIRD, Tampa.

To Camp Joseph E. Johnston, Jacksonville, Fla., to determine his physical fitness for active service, from Pensacola, Capt. STEPHEN R. N. KENNEDY, Pensacola.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Meade, Lieut. DANIEL B. WILLIAMS, Lake City; from Camp Wheeler, Lieut. SHALER A. RICHARDSON, Jacksonville.

Georgia

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. EUGENE L. DALLWIG, Augusta. For duty, and on completion *to his propert station*, from Camp Meade, Lieut. RALPH E. HAMILTON, Douglasville.

To Camp Devens, Ayer, Mass., base hospital, from Fort Oglethorpe, Lieut. DANIEL N. MATHESON, Atlanta.

To Camp Gordon, Atlanta, Ga., base hospital, Major CYRUS W. STRICKLER, Atlanta.

To Camp Hancock, Augusta, Ga., with the board examining the troops for cardiovascular diseases, Major THOMAS D. COLEMAN, Augusta.

To Camp Jackson, Columbia, S. C., for duty, Lieut. GUY S. SELMAN, Douglasville.

To Camp Sevier, Greenville, S. C., to examine drafted troops, and on completion *to his proper station*, from Camp Jackson, Lieut. EVERARD A. WILCOX, Augusta.

To Camp Upton, L. I., N. Y., for duty, from Army Medical School, CHESTER A. WITMER, Waycross.

To Camp Wheeler, Macon, Ga., with the board examining the command for nervous and mental diseases, from Camp Meade, Lieut. JAMES K. PETTIT, Milledgeville.

To Fort Bayard, N. M., for observation and treatment, from Camp Gordon, Lieut. LEWIS J. KEELING, Atlanta.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Major GEORGE A. TRAYLOR, Augusta; from Camp Lee, Lieut. JAMES J. BEATON, Waycross; from Camp Wheeler, Lieut. LAWSON S. RENTZ, Ray City.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Wheeler, Lieut. BOWMAN J. WISE, Plains.

Idaho

To Camp A. A. Humphreys, Accotink, Va., for duty, and on completion *to his proper station*, from Camp Meade, Capt. CLYDE E. WATSON, Nampa.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Fort Bliss, Lieut. ROY W. QUICK, Weston.

To Chicago, Ill., Northwestern University School of Medicine, for instruction, Lieut. JAMES R. YOUNG, Pocatello.

To Hoboken, N. J., for duty, from Camp Grant, Lieut. JOHN F. COUGHLIN, Twin Falls.

To Otisville, N. Y., for duty, from New Haven, Capt. JOHN E. WHITE, Twin Falls.

Illinois

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Lieuts. SAMUEL L. STEVENS, Dalton City; GEORGE E. LYON, Decatur.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. THOMAS H. HENN, Chicago; from Camp Wheeler, Lieut. HERMAN REINSCH, Chicago; from Fort Oglethorpe, Lieut. RUSSELL M. JOHNSON, Chicago. For duty, and on completion *to his proper station*, from Camp Meade, Lieut. JOHN F. GRANT, Chicago.

To Camp Crane, Allentown, Pa., base hospital, from Camp MacArthur, Lieut. THOMAS P. O'CONNOR, Chicago.

To Camp Custer, Battle Creek, Mich., base hospital, Major ROBERT B. PREBLE, Capt. ALBERT B. KEYES, Chicago.

To Camp Devens, Ayer, Mass., base hospital, from Camp Crane, Capt. CHARLES RICKSHER, Kankakee.

To Camp Dix, Wrightstown, N. J., for duty, from New York City, Lieut. GEORGE A. CONREY, Chicago.

To Camp Dodge, Des Moines, Ia., base hospital, from Camp Greene, Capt. LAMBERT W. ROSENBAUM, Chicago; from Camp Kearny, Capt. IRVING PERRILL, Chicago; from Camp Cody, Lieut. JESSE H. ROTH, Kankakee.

To Camp Hancock, Augusta, Ga., for duty, Capt. MAURICE L. BLATT, Chicago.

To Camp Jackson, Columbia, S. C., base hospital, Major BIRD McP. LINNELL, Lieuts. LELAND H. ANDERSON, WILLIAM J. BUTLER, MAURICE DOKTORSKY, MAX M. KULVINSKY, JACOB STERN, Chicago.

To Camp MacArthur, Waco, Tex., for duty, from Fort Oglethorpe, Lieut. GERHARD J. TORELL, Chicago.

To Camp McClellan Anniston, Ala., for duty, from Camp Grant, Lieut. EDWARD T. ROBINSON, Chicago.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. WILLIAM L. HANSON, Bellevue, Ill.

To Camp Raritan, Metuchen, N. J., for duty, from Jefferson Barracks, Lieut. HARRY D. WOLFF, Chicago.

To Camp Shelby, Hattiesburg, Miss., with the board examining the command for nervous and mental diseases, from Camp Logan, Lieut. WALTER C. COOK, Peoria.

To Camp Sheridan, Montgomery, Ala., for duty, from Camp Meige, Lieut. MAXWELL LANDG, Chicago.

To Camp Sherman, Chillicothe, Ohio, as orthopedic surgeon, from Fort Oglethorpe, Lieut. GEORGE W. STABEN, Springfield. For duty, Lieut. JOSEPH JAFFE, Chicago.

To Camp Upton, L. I., N. Y., base hospital, from Fort Oglethorpe, Lieut. FRED R. BATCHELOR, Batchtown. For duty, from New York City, Lieut. ARTHUR L. MUREN, Patterson.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Beauregard, Lieut. CHARLES H. MANLOVE, Jr., Chicago.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Sherman, Lieut. WALTER C. MOHR, Chicago. With the board examining the command for nervous and mental diseases, from Ann Arbor, Lieut. DAVID B. ROTMAN, Chicago.

To Chicago, Ill., Northwestern University, for instruction, from Camp MacArthur, Lieut. JOHN REED, Akin; from Fort Oglethorpe, Lieut. ARTHUR S. SANDLER, Chicago. Presbyterian Hospital for instruction, and on completion *to their proper stations*, from Camp Custer, Lieuts. ABRAHAM L. DEASER, Chicago; LEO. V. GATES, Zeigler. To assist in the examination of drafted troops, Lieut. HARRY S. SULLIVAN, Chicago.

To Columbus Barracks, Ohio, for duty, from Fort Oglethorpe, Lieut. HARVEY D. THORNBURG, Chicago.

To Fort Bliss, Texas, base hospital, Lieut. ROSS E. ELVIDGE, Longview.

To Fort Des Moines, Ia., base hospital, Lieut. TALLEY J. ECHERER, Chicago; Lieut. LUCIUS COLE, Oak Park; from Camp Zachary Taylor, Lieut. RALPH C. SULLIVAN. For duty, Lieut. WILLIAM J. HENRY, Chicago.

To Fort Oglethorpe, for instruction, Capt. WILBUR H. GILMORE, Mt. Vernon; Lieuts. PHILIP H. WOLFRAM, Chicago; from Chicago, Lieuts. EDWARD HANS, RUSSELL D. ROBINSON, Chicago.

To Fort Riley for instruction, Lieut. LEWIS H. GREEN, Johnston City.

To Hoboken, N. J., for duty, Lieut. CHARLES I. McDONNELL, Chicago; from Camp Sherman, Capt. RALPH E. KLECKNER, Mattoon; from Camp Wheeler, Lieuts. JOHN PELLETTIERI, Chicago; JOSEPH F. MIECZYNSKI, North Chicago; from Camp Zachary Taylor; Lieut. MICHAEL CAGANO, Chicago; from Fort Oglethorpe, Lieut. FRANK C. FARMER, Chicago; from Fort Riley, Capt. IRVIN S. KOLL, Chicago; from New York City, Capt. ALBERT B. McQUILLAN, Chicago; Lieut. ELMER M. THOMAS, Aurora.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Pike, Lieut. JOHN W. McGUIRE, Chicago.

To New York City for duty, and on completion *to his proper station*, Major CASEY A. WOOD. Bellevue Hospital for instruction, and on completion *to Camp Sevier*, Greenville, S. C., base hospital, Capt. MARK L. GIER, Chicago. On completion *to his proper station*, from Camp Meade, Lieut. FRANK T. DUFFY, Chicago.

To Pittsburgh, Pa., Carnegie Bldg., for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. CHARLES A. ROBBINS, Dixon. On completion *to Camp Sherman*, Chillicothe, Ohio, base hospital, Lieut. HARRY S. SULLIVAN, Chicago. Carnegie Institute of Technology, for instruction, and on completion *to his proper station*, from Fort Riley, Lieut. JOHN W. GEIGER, LaSalle.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, Capt. OSCAR T. SCHULTZ, Chicago.

Indiana

To Camp A. A. Humphreys, Accotink, Va., base hospital, from Fort Oglethorpe, Lieut. MILES F. PORTER, Fort Wayne.

To Camp Dix, Wrightstown, N. J., for duty, Capt. JOHN M. WALLACE, Ridgeville.

To Camp Dodge, Des Moines, Ia., base hospital, Lieut. ROBERT C. HAMILTON, Indiana Harbor.

To Camp Sevier, Greenville, S. C., to examine drafted troops and on completion *to his proper station*, from Camp Jackson, Lieut. CHARLES F. VOIGT, New Albany.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. HERBERT E. WHITLEDGE, Evansville.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Camp Kearny, Lieut. ARLIE J. ULLRICH, Aurora.

To Fort Oglethorpe for instruction, Lieut. ELI LEVIN, Indiana Harbor; from Chicago, Lieut. HELMUTH C. W. ERNST, East Chicago.

To Hoboken, N. J., for duty, Lieut. JOSEPH M. FREEMAN, Sullivan; from Camp Wadsworth, Lieut. WALTER D. MARTIN, Kramer; from Camp Wheeler, Lieut. ELMER E. EIFERT, Jasper; from Fort

Oglethorpe, Capt. GEORGE H. HOCKETT, Anderson; from Washington, D. C., Lieut. JOHN S. ROBINSON, Winchester.

To New York City, Bellevue Hospital, for instruction and on completion *to his proper station*, from Camp Zachary Taylor, Lieut. EDGAR N. MENDENHALL, Fort Wayne.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to his proper station*, from Camp McClellan, Lieut. JOHN J. CONNELLY, Rockville.

To Pittsburgh, Pa., Carnegie Bldg., for instruction, and on completion *to his proper station*, from Camp Beauregard, Lieut. EDWARD L. DEWEY, Whiting.

To Plattsburg Barracks, N. Y., for duty, from Fort Strong, Major THOMAS B. V. KEENE, Indianapolis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Waynesville, N. C., for duty, Capt. FRANKLIN T. WILCOX, Laforte.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Grant, Capt. CLAUDE DeV. HOLMES, Indianapolis.

Iowa

To Camp Sevier, Greenville, S. C., for duty, from Camp Zachary Taylor, Lieut. EDGAR A. STEWART, Salem.

To Camp Sherman, Chillicothe, Ohio, for duty, Capt. ELLIOTT R. KING, Letts. As orthopedic surgeon, from Fort Oglethorpe, Lieut. RAY E. KULP, Davenport. Base hospital, Lieut. HENRY M. LEE, Decorah.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Custer*, Battle Creek, Mich., base hospital, Capt. JOSIAH R. McKIRAHAN, Perry. On completion *to his proper station*, from Camp Custer, Lieut. PAUL B. M. KERSTEN, Fort Dodge; from Camp Dodge, Capts. CHRISTIAN H. DEWEY, Perry; GARNER F. PARKER, Pocahontas; Lieut. JOSEPH L. RUYAVITZ, Duncombe.

To Fort Riley for instruction, Lieut. ANDLEY E. NELSON, Sidney.

To Hoboken, N. J., for duty, Lieuts. WALTER FRAZER, Algona; CLARENCE H. DOTY, Center Point; HENRY L. GARDINER, Guyden; from Camp Logan, Lieut. FISHER B. E. MILLER, Cherokee; from Camp Zachary Taylor, Lieut. FRANK H. GAFFEY, Bradgate.

To Pittsburgh, Pa., Carnegie Bldg., for instruction, and on completion *to his proper station*, from Camp Beauregard, Lieut. MERLE BONE, Albia.

To the inactive list, Capt. LEO E. EVENS, Waterloo.

Kansas

To Camp Jackson, Columbia, S. C., for duty, Lieut. RILEY H. MILLER, Greensburg.

To Fort Bliss, Tex., base hospital, Capt. CHARLES E. ELLIOTT, Fort Riley.

To Fort McPherson, Ga., for duty, from Fort Oglethorpe, Capt. CLIFFORD C. NESSELRODE, Kansas City.

To Fort Oglethorpe for instruction, Lieut. HARRY L. GOSS, Horton.

To Hoboken, N. J., for duty, from Fort Riley, Lieut. GEORGE JENNINGS, Simpson.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Pike, Lieut. ALBERT M. DAWSON, Topeka. Tulane University, to make physical examinations and give medical attention to the drafted men enrolled at this institution, and on completion *to his proper station*, from Camp Shelby, Lieut. HENRY H. HAERLE, Niles.

To New York City, Bellevue Hospital, for instruction and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Capt. ARCHIBALD D. JONES, Wichita. On completion *to his proper station*, from Camp Meade, Lieut. CASPER J. MIDDLEKAUFF, Hays.

To Otisville, N. Y., for duty, from Fort Riley, Capt. ANDREW ENGBERG, McPherson.

To San Antonio, Tex., for duty, from Houston, Lieut. WILLIAM S. FLEMING, Ness City.

To Wichita Falls, Tex., Call Field, Signal Corps Aviation School, for duty, from Fort Worth, Lieut. GEORGE E. BRETHOUR, Dwight.

Kentucky

To Aberdeen, Md., for duty, Capt. ROBERT Y. SHEPHERD, Taylorsville.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Shelby, Capt. JOHN T. PRICE, Harrodsburg.

To Camp Jackson, Columbia, S. C., for duty, Lieut. OLLIE T. LOWERY, Tolu.

To Camp Lee, Petersburg, Va., with the board examining the troops for cardiovascular diseases, from Camp Meade, Capt. ALFRED H. KELLY, Shively. For duty, Capt. BENJAMIN L. HOLMES, Lieut. JOHN CARPENTER, Louisville.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. BALLARD C. LINCH, White Star.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Gorden, Capt. LLEWELLYN P. SPEARS, Louisville.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieut. SIMRALL ANDERSON, Glenview.

To Edgewood, Md., for duty, Lieut. LATTA A. CRANDELL, Louisville.

To Fort Oglethorpe for instruction, Capt. JAMES B. MASON, Landon.

To Markleton, Pa., for duty, from Camp Grant, Major BENJAMIN F. VAN METER, Lexington.

To Otisville, N. Y., for duty, from New Haven, Capt. WALTER A. LACKEY, Paducah.

Louisiana

To Camp Crane, Allentown, Pa., base hospital, from Camp Travis, Capt. WILLIAM M. PERKINS, New Orleans.

To Camp Sevier, Greenville, S. C., to examine drafted troops and on completion *to his proper station*, from Camp Jackson, Lieut. PRESSLY Y. DONALD, Jackson.

To Fort Bayard, N. M., for duty, from Camp Dodge, Lieut. JOSEPH B. D'AUNCY, New Orleans.

To Hoboken, N. J., for duty, from New York City, Capt. WEBSTER W. BELDEN, New Orleans.

To Pittsburgh, Pa., Carnegie Bldg., for instruction, and on completion *to his proper station*, from Camp Beauregard, Lieut. SOLON R. HUMPHRIES, New Orleans.

Maine

To Camp MacArthur, Waco, Tex., to examine the command for nervous and mental diseases, from Camp Logan, Capt. FRANK E. LESLIE, Andover.

The following order has been revoked: *To Camp Devens*, Ayer, Mass., base hospital, Lieut. FRANK Y. GILBERT, Portland.

Maryland

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. JOSEPH E. NORRIS, Baltimore.

To Camp Crane, Allentown, Pa., base hospital, from Fort Oglethorpe, Lieut. CHARLES B. ENSOR, Baltimore.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. GEORGE R. WILKINSON, Baltimore.

To Camp Wadsworth, Spartanburg, S. C., to examine the command for nervous and mental diseases, from Camp Meade, Lieut. VERNON L. MAHONEY, Catonsville.

To Camp Wheeler, Macon, Ga., with the board examining the troops for cardiovascular diseases, Lieut. JOHN T. KING, Jr., Baltimore.

To Cape May, N. J., for duty, and on completion *to his proper station*, Major CHARLES HAGLEY, Jr., Baltimore.

To Hoboken, N. J., for duty, Lieuts. FREDERICK H. CHARLES, Midland; JOHN D. DARBY, Oakland.

To New York City, Neurological Institute, for instruction, Lieut. HARRY W. WHEATON, Baltimore.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to Camp Greene*, Charlotte, N. C., base hospital, Lieut. HUNTER R. MANN, Mandela Springs.

The following orders have been revoked: *To Camp Hancock*, Augusta, Ga., for duty, from Camp Jackson, Lieut. ISRAEL J. FEINGLOS, Baltimore. *To Fort Oglethorpe* for instruction from Army Medical School, Lieut. DUMONT F. ELMENDORF, Baltimore.

Massachusetts

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Lieut. THOMAS B. RAFFERTY, Lynn.

To Camp A. A. Humphreys, Accotink, Va., for duty, and on completion *to his proper station*, from Camp Dix, Lieut. GEORGE B. WILBUR, Newton.

To Camp Devens, Ayer, Mass., base hospital, Capt. DANIEL B. REARDON, Quincy; Lieut. FLETCHER H. COLBY, Boston.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Meade, Major GEORGE E. McPHERSON, Medfield; from Camp Meigs, Lieut. ISRAEL E. RUDMAN, Boston.

To Camp Gordon, Atlanta, Ga., with the board examining the troops for cardiovascular diseases, from duty as a private, Lieuts. LESLIE N. GAY; THOMAS McC. McCABON, Boston.

To Camp Lee, Petersburg, Va., base hospital, Major FRANCIS P. EMERSON, Lieut. THOMAS H. VAN CAMP, Boston. For duty, Lieut. JOHN L. C. COFFIN, Boston. To examine the command for nervous and mental diseases, and on completion *to his proper station*, from Camp Devens, Lieut. EARLE H. MacMICHAEL, Malden.

To Camp Sevier, Greenville, S. C., to examine drafted troops and on completion *to his proper station*, from Camp Jackson, Lieut. CYRUS B. PARTINGTON, Fall River.

To Camp Shelby, Hattiesburg, Miss., with the board examining the command for nervous and mental diseases, from Jackson Barracks, Lieut. FRANCIS S. CALDICOTT, Milford.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Camp Upton, Lieut. RICHARD A. CUNNINGHAM, Boston.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Custer, Lieut. WILFRED T. LAFORTUNE, Fitchburg.

To Fort McPherson, Ga., for duty, from Camp Lee, Capt. JOSEPH B. SAYLES, Taunton.

To Fort Oglethorpe for instruction, Lieut. FRANK F. SANDLER, Revere; from duty as a private, Lieut. MILES M. HAMBURG, Waltham.

To Hoboken, N. J., for duty, Lieut. JOHN H. SHAW, Plymouth; from Camp Custer, Lieut. WILLIAM T. McMAHON, Pittsfield; from Camp Upton, Lieut. WINFRED OVERHOLSER, Westboro; from Fort Oglethorpe, Lieut. LEO P. CRIMMIN, Brockton.

To Lakewood, N. J., for temporary duty, and on completion *to his proper station*, Capt. FRANCIS W. PEABODY, Boston.

To Otisville, N. Y., for duty, from New Haven, Capt. CHARLES E. PERRY, Haydenville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton*, Long Island, N. Y., base hospital, Capt. FRANK B. SEDGLEY, West Roxbury. On completion *to Wilmerbridge, N. Y.*, for temporary duty, Capt. HAROLD A. JOHNSON, Lynn. On completion *to Camp Hancock*, Augusta, Ga., base hospital, Lieut. RALPH W. TURNER, Boston.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. FRANK B. GRANGER, Boston.

Michigan

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Lieut. HARTHER L. KEIM, Ann Arbor.

To Camp Custer, Battle Creek, Michigan, as orthopedic surgeon in camp, from Chicago, Lieut. CARROLL S. THOMSON, Clinton. Base hospital, from Camp Sherman, Lieut. ARTHUR R. TIMME, Detroit.

To Camp Dix, Wrightstown, N. J., for duty, Capt. HARRY B. KNAPP, Ionia.

To Camp Kelly, San Antonio, Texas, for duty, from Mineola, Lieut. RICHARD F. BOONSTRA, Detroit.

To Camp Sherman, Chillicothe, O., for duty, Lieut. MALCOM R. MARKSON, Calumet.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Custer, Capt. ROBERT M. MARTIN, Detroit; Lieut. JOHN C. FOSHBEE, Grand Rapids; from Camp Dodge, Lieut. LEO R. PHILLIPS, Flint; from Camp Grant, Lieuts. ROBERT E. HAYES, Channing; EDMUND W. BOLIO, Detroit; RAYMOND M. SCHULTE, Dollar Bay. On completion *to Camp Pike*, Little Rock, Ark., base hospital, Lieut. CLIFFORD P. CLARK, Flint.

To Fort Des Moines, Ia., base hospital, Lieut. GEORGE H. CAMPAU, Detroit. For duty, Lieut. HARRY LIEFFERS, Grand Rapids.

To Fort McPherson, Ga., for duty, Lieut. ROBERT V. HOFFMAN, Detroit.

To Fort Riley for instruction, from Grand Rapids, Capt. LOUIS BARTH, Grand Rapids.

To Hoboken, N. J., for duty, Capt. CHARLES D. D. PULLEN, Mt. Pleasant; Lieuts. JAMES GOSTANIAN, EARL W. MAY, Detroit; from Camp Grant, Capt. LOUIS H. CHAMBERLIN, Grand Rapids; from Fort Oglethorpe, Capt. EDWARD A. FLORENTINE, Ewen.

To New Haven, Conn., for duty, Lieut. FRANK C. BLADERREY, Colon.

To Otisville, N. Y., for duty, from New Haven, Capt. Charles H. MERRILL, Detroit.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to his proper station*, from Camp Zachary Taylor, Capt. JOHN D. McKINNON, Calumet; Lieut. BURNS R. EASTMAN, Muskogee.

To Pittsburgh, Pa., Carnegie Bldg., for instruction, and on completion *to Camp Hancock*, Augusta, Ga., base hospital, Lieut. ISAAC S. GELLERT, Detroit. On completion *to Camp Sherman*, Chillicothe, Ohio, base hospital, Lieut. CLARENCE W. OLSON, Escanaba. On completion *to his proper station*, from Camp Sherman, Lieut. WORTH W. WALTON, Mancelona.

To Sacramento, Calif., Signal Corps Aviation School for duty, from Mount Clemens, Lieut. NELSON ABBOTT, Lake City.

Minnesota

To Camp American University, Washington, D. C., for duty, Lieut. CHARLES L. VON HESS, Rochester.

To Camp Dodge, Des Moines, Ia., base hospital, Lieut. FRANK N. KNAPP, St. Paul.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to their proper stations*, from Camp Dodge, Capt. WALTER D. BRODIE, St. Paul; from Camp Grant, Lieut. THURMAN R. BEAVER, Indianapolis.

To Fort Thomas, Ky., for duty, from New Haven, Lieut. GUY BRELSFORD, State Sanatorium.

To Hoboken, N. J., for duty, from Camp Custer, Capt. FRANCIS J. SAVAGE, St. Paul; from Fort Riley, Capts. HARRY H. SELLERS, JOHN S. MACNIE, Minneapolis.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Pike, Lieut. FREDERICK N. BERKEN, Red Wing.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Upton, L. I., N. Y.*, base hospital, Lieut. LAWRENCE E. LOPPER, Rochester.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. JOE M. NEAL, Minneapolis.

To San Antonio, Tex., for duty, from Houston, Lieut. SAMUEL R. FRAKER, Cass Lake.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Capt. ELMER M. JONES, St. Paul.

To Washington, D. C., for duty, from Camp Beauregard, Lieut. ALBERT E. JOHANN, Minneapolis.

To Wichita Falls, Texas, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. EDWIN S. INGERSOLL, Rochester.

Mississippi

To Army Medical School for instruction, from Fort Oglethorpe, Lieuts. THOMAS A. STRAIN, Meridian; JAMES H. SLAUGHTER, Plattsburgh.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Riley, Capt. ROBERT M. STEPHENSON, Lexington.

To Camp Hancock, Augusta, Ga., for duty, Lieut. ISAAC P. CARR, Clarksdale.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. JOSEPH C. ARMSTRONG, Water Valley.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Wheeler, Lieut. HENRY F. SPROLES, Vicksburg.

Missouri

To Camp Bowie, Fort Worth, Tex., as abistant to camp surgeon, from West Point, Lieut. ROY F. MILLS, Odessa. As member of a board examining the command for tuberculosis, from Fort Riley, Lieut. HENRY A. MEYERS, Sedalia.

To Camp Crane, Allentown, Pa., for duty, from the Surgeon-General's Office, Major FREDERICK W. BAILEY, St. Louis.

To Camp Grant, Rockford, Ill., base hospital, Capt. CHARLES L. BLANKS, Mexico.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. CLARE J. CLAPSADDLE, St. Louis.

To Camp Lee, Petersburg, Va., base hospital, from Fort Oglethorpe, Lieut. JOHN W. STEWART, St. Louis.

To Camp Pike, Little Rock, Ark., as a member of a board examining the command for tuberculosis, from Fort Riley, Lieuts. WILLIAM O. FINNEY, Chaffee; ROBERT SHEETZ, Orrick.

To Camp Travis, Fort Sam Houston, Tex., for duty, Lieut. RICHARD P. DORRIS, Jefferson City.

To Camp Upton, L. I., N. Y., for duty, from Army Medical School, Capt. HUBERT B. BEEDLE, Lieut. HUGH J. WITTWER, St. Louis.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Dodge*, Des Moines, Ia., base hospital, Lieut. EZRA C. GRIM, Kirksville.

To Fort Bliss, Tex., base hospital, Capt. CHARLES T. BELL, Maryville.

To Fort Riley for instruction, Lieut. JOSEPH A. HORIGAN, Kansas City.

To Fort Slocum, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Capt. EDWARD L. COOLEY, St. Louis.

To Hoboken, N. J., for duty, Capts. EDWARD L. STEWART, Kansas City; WILLIAM L. SHARP, Little Rock; from Camp Lee, Capt. CARL M. SNEED, Columbia; from Camp Wadsworth, Lieut. JAMES LEWALD, St. Louis; from Fort Des Moines, Lieut. HORACE S. DOWELL, Clearmont; from Fort Oglethorpe, Lieut. HOWARD O. LINNARDY, Kansas City; from Fort Riley, Lieut. WELCOME E. TILTON, Grant City.

To Newport News, Va., for temporary duty, from Fort Oglethorpe, Capt. JAMES W. SHANKLAND, St. Louis.

To Rochester Institute for instruction in laboratory work, and on completion to Army Medical School, for duty, Capt. McDOWELL BOTTS, Mexico.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. HUGH WILKINSON, Kansas City; from Fort Oglethorpe, Capt. WALTER C. G. KIRCHNER, St. Louis.

The following order has been revoked: *To Fort Sill, Okla.*, Lieut. JOHN N. DARROUGH, Kansas City.

Montana

To Camp A. A. Humphreys, Accotink, Va., for duty, from Camp Grant, Capt. GEORGE B. OWEN, Polson.

To Camp Doniphan, Fort Sill, Okla., for duty, from Camp Grant, Lieut. WILLIAM E. LONG, Anaconda.

To Camp Lewis, American Lake, Wash., for duty, Lieut. CHARLES A. GARDNER, Columbus.

To Fort Riley for instruction, Lieut. HERBERT H. JUDD, Boseman.

To Hoboken, N. J., for duty, from Blacksburg, Va., Lieut. FERRIS L. ARNOLD, Billings; from Camp Bowie, Lieut. ROBERT L. REYNOLDS, Kalispell; from Fort Riley, Capt. GEORGE H. PUTNEY, Great Falls; Lieut. EUGENE F. BRINDJOINC, Butte.

Nebraska

To Camp Crane, Allentown, Pa., for duty, from Fort Riley, Capt. NORMAN C. PRINCE, Omaha.

To Camp Dix, Wrightstown, N. J., for duty, Lieut. PERRY D. KELLY, Nemaha.

To Camp Hancock, Augusta, Ga., for duty, Lieut. EDGAR A. PICKENS, Benkleman.

To Camp Pike, Little Rock, Ark., for duty, Lieut. WILLIAM R. PETERS, Stanton.

To Camp Travis, Fort Sam Houston, Tex., for duty, Lieut. JOHN L. SEARS, North Loup.

To Camp Zachary Taylor, Louisville, Ky., with the board examining the command for nervous and mental diseases, Capt. SAMUEL J. STEWART, Hastings; from Ann Arbor, Lieuts. WARD W. HEDLUND, Ingleside; ANDREW J. SMITH, Salem.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Dodge, Lieut. CHARLES F. SHOOK, Omaha.

To Hoboken, N. J., for duty, Major ALFRED J. BROWN, Omaha; Capt. CECIL COPELAND, Beaver City, Lieut. WILLIAM L. SUCHA, Hastings.

To Pittsburgh, Pa., Carnegie Bldg., for instruction and on completion *to Camp Meade*, Annapolis Junction, Md., base hospital, Lieut. GEORGE F. FARMAN, Lincoln. On completion *to his proper station*, from Camp Beauregard, Lieut. ROY E. HALL, Fullerton.

New Hampshire

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. WALTER H. SQUIRES, Haverhill.

To Camp Sheridan, Montgomery, Ala., to examine the command for nervous and mental diseases, from New York City, Lieut. GOODWIN A. JOHNSON, Concord.

To Camp Sherman, Chillicothe, Ohio, to examine the command for nervous and mental diseases, Lieut. ARTHUR B. HOWARD, Concord.

To Markleton, Pa., for duty, from Fort Oglethorpe, Lieut. JAMES C. THOMPSON, North Stratford.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to Camp MacArthur*, Waco, Tex., for duty, from Camp Zachary Taylor, Lieut. MELVIN P. BADGER, Manchester.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Walter Reed General Hospital*, Takoma Park, D. C., for temporary duty, Lieut. JOHN C. LAWLER, Dover.

New Jersey

To Camp Crane, Allentown, Pa., base hospital, from Fort Oglethorpe, Lieut. JOHN J. SZYMANSKI, Passaic.

To Camp Dix, Wrightstown, N. J., for duty, Lieut. FRANK DEL. SHERWOOD, Jersey City.

To Camp Jackson, Columbia, S. C., base hospital, Lieuts. IRWIN E. DEIBERT, Hadon Heights; WILLIAM L. THOMPSON, Jersey City.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieuts. ARTHUR O. LARGAY; EDWARD A. MURPHY, Jersey City,

To Chicago, Ill., Northwestern University, for instruction, from Fort Oglethorpe, Lieut. ALEXANDER J. McCRAE, Upper Montclair.

To Colonia, N. J., for duty, from Army Medical School, Lieut. JOHN H. E. FUST, Carney's Point.

To Hoboken, N. J., for duty, from Camp Dix, Lieut. CHARLES RICH, Newark; from Camp Upton, Lieuts. MATTHEW S. LEVITAS, WALTER C. LIEBMANN, Newark; from Dansville, N. Y., Lieut. FRANK J. VAN NOORT, Paterson.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Wheeler*, Macon, Ga., base hospital, Capt. FREDERICK M. PAUL, Newark.

To Otisville, N. Y., for duty, from Walter Reed General Hospital, Lieut. CHARLES N. KAIGHN, Stratford.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to Camp McClellan*, Anniston, Ala., base hospital, Capt. HORACE D. BELLIS, Trenton.

To Williamsbridge, N. Y., for observation and treatment, from New York City, Lieut. HAROLD F. WESTCOTT, Bridgeton.

New Mexico

To Des Moines, Iowa, base hospital, Capt. GEORGE K. ANGLE, Albuquerque.

To Hoboken, N. J., for duty, from Camp Greene, Lieut. JOHN L. REID, Portales.

To San Antonio, Texas, Kelly Field, for duty, from duty as a contract surgeon, Capt. JOSEPH W. LACKEY, Carlsbad.

To Whipple Barracks, Ariz., for duty, Capt. JAMES B. VAN HORN, Santa Rosa.

New York

To Army Medical School for instructions, from Fort Oglethorpe, Lieut. NATHAN WIENBERG, Brooklyn. On completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Lieuts. JOHN D. COLSON, HENRY J. FEASTER, ALFRED H. IASON, ANTHONY MANGIARACINA, Brooklyn; PORTER A. STEELE, Buffalo; ABRAHAM B. PEMSLER, New York City.

To Camp A. A. Humphreys, Accotink, Va., as camp surgeon, from Camp Greene, Major ISAAC W. BREWER, Geneva. To examine the command for nervous and mental diseases, Capt. IRVING HOLLEY, Brooklyn. Base hospital, Lieut. ADAM EBERLE, Brooklyn; from Fort Oglethorpe, Lieut. KEVORK N. BOSTANIAN, New York City.

To Camp Colt, Gettysburg, Pa., for duty, from New York City, Lieut. JAMES J. CLARK, Olean.

To Camp Crane, Allentown, Pa., base hospital, from Camp Upton, Lieut. RICHARD S. PEARSE, Brooklyn; from New York City, Lieuts. WILLIAM G. HERRMAN, Brooklyn; SOL C. DAVIDSON, Roches-

ter; HERBERT DeG. SHERMAN, White Plains; from Walter Reed General Hospital, Major FREDERICK T. VAN BEUREN, New York City; Lieut. ONSLOW A. GORDON, Brooklyn.

To Camp Dix, Wrightstown, N. J., for for duty, Capt. JOHN G. CHADWICK, Buffalo.

To Camp Hancock, Augusta, Ga., for duty, Capt. SAMUEL FRANK, Lieut. MAURICE RIVKIN, Brooklyn.

To Camp Jackson, Columbia, S. C., for duty, Capt. DENIS A. McAULIFFE, New York City; Base hospital, Lieuts. LEROY J. BUTLER, Albany; HARRY F. GOCKLEY, RUSSELL H. OPPENHEIMER, Blackwell's Island; PAUL W. FETZER, New York City; HORACE E. ROBINSON, Pleasantville; from New York City, Capt. HENRY T. CHICKERING, New York City.

To Camp Kelly, San Antonio, Texas, for duty, from Mineola, Lieut. PAUL B. JENKINS, New York City.

To Camp Las Casas, San Juan, Porto Rico, for duty, from Camp Meade, Lieut. HERMAN GOODMAN, New York City.

To Camp Lee, Petersburg, Va., to examine the command for nervous and mental diseases, and on completion *to his proper station*, from New York City, Capt. JAMES F. MUNSON, Sonyea. Base hospital, Lieut. PERRY J. MANHEIMS, New York City. For duty, Lieut. HOWELL S. BONTECOU, Beacon. With the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. JOHN F. LEWIS, New York City.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieuts. RALPH LEVENTHAL, Binghamton; JOHN CALANDRIELLO, Brooklyn; JAMES R. SKEECH, New York City.

To Camp Sevier, Greenville, S. C., with the board examining the troops for cardiovascular diseases, from Camp Lee, Capt. MARCUS A. ROTHSCHILD, New York City. To examine drafted troops, and on completion *to his proper station*, from Camp Jackson, Lieut. HARRY V. JUDGE, Albany.

To Camp Shelby, Hattiesburg, Miss., with the board examining the troops for nervous and mental diseases, Lieut. HYMAN HERSHBERG, Bronx.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieuts. NATHANIEL M. HOCHBERG, Bronx; SIMON L. WRONKER, Rochester.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Dallas, Lieut. MAX WEINSTEIN, Brooklyn.

To Camp Upton, L. I., N. Y., for duty, Lieuts. BRUCE L. JONES, Long Island; SAMUEL ALTMAN, New York; from Army Medical School, Lieut. NATHANIEL CROST, New York City.

To Camp Wadsworth, Spartanburg, S. C., for duty, from New Haven, Capt. LEONARD P. SPRAGUE, Chateauguay.

To Camp Wheeler, Macon, Ga., to examine the command for nervous and mental diseases, from Fort Oglethorpe, Lieut. JAMES M. O'NEILL, Flushing.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Grant, Lieut. BENJAMIN D. RUBEN, Port Chester.

To Del Rio, Texas, for duty, from Camp Shelby, Lieut. LEROY D. SOPER, Smyrna.

To Edgewood, Md., base hospital, from Fort Oglethorpe, Lieut. IRVING S. STARR, New York City.

To Fort Des Moines, Iowa, base hospital, Lieut. DONALD I. KIRK, Pittsburgh; from Camp Dodge, Capt. KENT E. WILLIAMS, Rome.

To Fort Sam Houston, Texas, for duty, Major JAMES I. RUSSELL, New York; from Fort Oglethorpe, Lieut. ANDREW J. ANDERSON, Long Island City.

To Hoboken, N. J., for duty, Capts. DANIEL C. O'NEIL, Binghamton; HORACE M. MANN, Brockport; Lieuts. SAMUEL A. MACLAR-SHAW, JOHN WIENMANN, Brooklyn; HAROLD E. SHEAR, Long Island; OSCAR H. FINKLE, New York City; FREDERICK P. LEE, Rosebank, Staten Island; from Army Medical School, Lieut. WALTER C. FOX, Fort Plain; from Camp Devens, Capt. THOMAS E. PATTERSON, Brooklyn; from Camp Dix, Lieut. HYMAN O. PEPERSON, Brooklyn; from Camp Meigs, Lieut. PHILIP KORN, New York City; from Cape May, Major LEMUEL R. HURLBUT, Lockport; from Fort Oglethorpe, Capt. JOSEPH E. HURLEY, Rochester; Lieut. THOMAS A. McGRATH, Moosic Falls; from New York, Lieut. SAMUEL MAN B. PHILIPS, New York; from Washington, D. C., Lieut. FRANCIS J. LAWLER, Glen Falls; from Williamsbridge, Lieut. LOUIS GOLD, Brooklyn. Base hospital, Lieut. GORDON R. McFARLAND, New York City; from Rockefeller Institute, Lieut. MARTIN F. NOLAN, North Tonawanda.

To New Haven, Conn., for duty, Lieut. HENRY A. LATANE, Mount McGregor.

To New York City, Bellevue Hospital, as assistant instructor, from Rockefeller Institute, Capt. TIMOTHY F. SULLIVAN, New York City. For instruction, and on completion *to Camp McClellan*, Anniston, Ala., base hospital, Lieut. HARRY J. HAMMOND, Buffalo. On completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Lieut. GEO. I. SIGGELELI, Brooklyn. On completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, Lieut. WALTER A. McCULLOUGH, Brooklyn. On completion *to Camp Zachary Taylor*, Louisville, Ky., base hospital, Capt. FREDERICK T. OWENS, Utica. On completion *to his proper station*, from Camp Zachary Taylor, Lieut. HARRISON BETTS, Yonkers. On completion *to Washington, D. C.*, for duty in the Surgeon-General's Office, Capt. WILLIAM H. S. KNIPE, New York City.

To Otisville, N. Y., for duty, from New Haven, Capts. GEORGE H. SHAW, Camillus; THOMAS F. ELLIS, Lieut. FRANCIS A. GLASS, New York.

To Philadelphia, Pa., for duty, and on completion *to his proper station*, Lieut. JOHN P. SHARP, Niagara Falls.

To Pittsburgh, Pa., Carnegie Building, for instruction, and on completion *to his proper station*, from Camp Beauregard, Lieut. JOHN C. BROWN, Albany; from Camp Sherman, Capts. FREDERICK J. PFIESTERER, Ceres; MILTON G. BURCH, Hornell; LOWELL T. GENUNG, Worcester.

To Richmond, Va., Richmond School Board, to make physical examinations and give medical attention to the drafted men enrolled at this institution, and on completion *to his proper station*, from Camp Lee, Lieut. SAMUEL ZWERLING, Brooklyn.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Wheeler*, Macon, Ga., base hospital, Lieut. CALVIN E. BUSWELL, Brooklyn.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Fort Oglethorpe, Capt. JAMES P. FISKE, New York. For observation and treatment, from Camp MacArthur, Capt. JAMES E. CROSSMAN, East Randolph.

To Washington, D. C., for consultation, and on completion *to Newport News, Va.*, for duty, from Camp Joseph E. Johnston, Capt. HARRY PLOTZ, Brooklyn. For duty in the Surgeon-General's Office, Capt. FRANKWOOD E. WILLIAMS, New York.

To Williamsbridge, N. Y., for temporary duty, Major T. PASSMORE BARNES, New York City.

The following order has been revoked: *To Camp Lee*, Petersburg, Va., for duty, Lieut. SAMUEL S. FERN, New York City.

North Carolina

To Camp Gordon, Atlanta, Ga., as member of board examining the command for tuberculosis, from Fort Oglethorpe, Capt. THOMPSON FRAZER, Asheville.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Sevier, Lieut. JAMES C. BRASWELL, Jr., Wilson.

To Camp Upton, L. I., N. Y., for duty, from New Haven, Capt. CHARLES S. JORDAN, Asheville.

To Camp Wheeler, Macon, Ga., with the board examining the command for nervous and mental diseases, from Fort Screven, Lieut. EVERETT S. BARR, Asheville.

To Edgewood, Md., for duty, Lieut. HENRY B. ROWE, Mount Airy.

To Fort Riley for duty, from Camp Lee, Lieut. MAX C. KING, Franklinton.

To Mineola, L. I., N. Y., Hazelhurst Field, Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. JOHN B. POWERS, Wake Forest.

North Dakota

To Camp Grant, Rockford, Ill., base hospital, from Jefferson Barracks, Capt. ROBERT D. CAMPBELL, Grand Forks.

To Camp Lauret, Laurel, Md., for duty, from Camp Grant, Lieut. WILLIAM E. MARKET, Lidgerwood.

To Kankakee, Camp Grant, Rockford and Chicago, Ill., for conference and instruction, and on completion *to his proper station*, Major FREDERICK H. BAILEY, Fargo.

To Camp Meade, Annapolis Junction, Md., as orthopedic surgeon, in camp, from Philadelphia, Lieut. HARRY J. FORTIN, Fargo.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction, and on completion *to his proper station*, from Fort Riley, Lieut. GUY S. FROGNER, Parshall.

Ohio

To Alessandro, Calif., Signal Corps Aviation School, for duty, from Houston, Lieut. FRANCIS T. CALLEN, Columbus; from Mount Clemens, Lieut. JOHN A. TRUE, Port Clinton.

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. JAMES G. SMAILES, Coshocton.

To Biltmore, N. C., for duty, Capt. JOHN D. DUNHAM, Columbus.

To Camp Grant, Rockford, Ill., base hospital, from Camp Sherman, Capt. JOSEPH E. PIRRUNG, Cincinnati.

To Camp Hancock, Augusta, Ga., for duty, Capt. PERCY W. COBB, Cleveland.

To Camp Lee, Petersburg, Va., base hospital, from Camp Crane, Capt. JOHN H. HARVEY, Toledo.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. ALDO V. SIBERT, Lima.

To Camp Meade, Annapolis Junction, Md., as orthopedic surgeon in camp, from New York City, Lieut. LEONARD E. STUTEMAN, Dayton.

To Camp Sherman, Chillicothe, Ohio, with the board examining the command for cardiovascular diseases, from Fort Oglethorpe, Major ROGER G. MORRIS, Cincinnati. Base hospital, Lieut. ALFRED L. MAYFIELD, Cincinnati.

To Camp Upton, L. I., N. Y., for duty, Lieut. CARROLL E. DeCOURCY, Cincinnati; Lieut. JOHN SLIVKA, Cleveland.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Custer, Lieut. JOHN H. MURRAY, Massillon; from Camp Grant, Lieut. IGNATIUS E. JASINSKI, Cleveland.

To Cleveland, Ohio, Lakeside Hospital, for duty, Capt. HENRY K. YAGGI, Salem.

To Colonia, N. J., for duty, from Camp Pike, Capt. ROBERT R. SELLERS, Orwell.

To Columbus Barracks, Ohio, for duty, from New Haven, Lieut. CHARLES K. ERVIN, Cincinnati.

To Edgewood, Md., for duty, from Washington, D. C., Lieut. CHARLES ALBERT S. WILLIAMS, Marietta.

To Fort Logan Colo., for duty, from Jefferson Barracks, Lieut. GEORGE H. REEVE, Cleveland.

To Fort Oglethorpe for instruction, Capts. ZADOK F. ATWELL, Amsterdam; DANIEL L. MOHN, Ashland; from duty as a private, Lieut. ELI F. RAMBO, Akron.

To Fort Sam Houston, Texas, for duty, from Camp Pike, Lieut. RUSSELL E. LIGHTNER, Kingston.

To Hoboken, N. J., for duty, Lieuts. AMOS E. FRIED, Cleveland; ROSCOE H. SPITLER, Greenville; PINCKNEY S. BONE, Lancaster; BENJAMIN MCLELLAN, Xenia; from Camp Upton, Capt. ARTHUR J. McCRACKEN, Bellefontaine; from Fort Des Moines, Lieut. JOHN F. HOLTZ, Plymouth; from New York City, Lieuts. HARRY E. WOODBURY, Akron; JOHN K. LAWSON, Dayton.

To New Haven, Conn., for duty, from Camp Pike, Major PHILIP GATH, Cincinnati.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to his proper station*, from Camp Zachary Taylor, Capt. IVAN L. BIGGS, Custer.

To Pittsburgh, Pa., Carnegie Building, for instruction, and on completion *to his proper station*, from Camp Sherman, Capt. VICTOR BIDDLE, Steubenville, Lieut. CHARLES S. JACKSON, Edison.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. CLARKE C. PATTON, Ashland. For instruction in the treatment of infected wounds, and on completion *to Walter Reed General Hospital*, Takoma Park, D. C., for temporary duty, Lieut. ARTHUR H. SMITH, Marietta.

To Waynesville, for temporary duty, Capt. ALFRED C. BARTHOLOMEW, Van Wert.

Oklahoma

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. ELIJAH S. SULLIVAN, Oklahoma City.

To Camp A. A. Humphreys, Accotink, Va., base hospital, from Fort Oglethorpe, Major RUSSELL L. KURTZ, Nowata. For duty, from Fort Oglethorpe, Capt. HENRY DeW. SHANKLE, Hastings.

To Camp Crane, Allentown, Pa., base hospital, from Army Medical School, Lieut. GUY P. McNAUGHTON, Miami.

To Camp Dodge, Des Moines, Ia., base hospital, from Camp Doniphan, Lieut. CLYDE F. LOY, Shawnee.

To Camp Grant, Rockford, Ill., with the board examining the command for nervous and mental diseases, from Ann Arbor, Capt. ANTONIO DeB. YOUNG, Oklahoma City.

To Camp Hancock, Augusta, Ga., for duty, Lieut. JAMES LAS. MINER, Beggs.

To Camp Jackson, Columbia, S. C., for duty, Lieut. EDWARD N. McKEE, Enid; HARDIN F. IRVAN, Tulsa.

To Camp John Wise, San Antonio, Texas, for duty, from Waco, Lieut. JOSEPH T. GUNTER, Ochelata.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. LAWRENCE H. HILL, Idabel.

To Colonia, N. J., for duty, from New York City, Lieut. MARION M. ROLAND, Oklahoma City.

To Fort Bliss, Texas, for duty, Lieut. WILLIAM G. LEMON, Tulsa; from Fort Leavenworth, Lieut. BARTON H. WATKINS, Goteblo.

To Fort Des Moines, Iowa, base hospital, from Camp Zachary Taylor, Lieut. HERMAN A. LAFORCE, Blair.

To Fort Riley for instruction, Lieut. JAMES M. CANNON, Billings.

To Hoboken, N. J., for duty, Lieut. GEORGE N. BILBY, Alva; WILLIAM D. BORNINGER, Atwood; from Camp Sherman, Lieut. ORANGE E. WELBORN, Kingston.

To Wichita Falls, Texas, Signal Corps Aviation School, for duty, Lieut. LITTLETON A. NEWTON, Oklahoma City.

The following order has been revoked: *To Fort Des Moines, Iowa*, for instruction, Lieut. ROBERT W. MOTLEY, Muskogee.

Oregon

To Camp Lewis, American Lake, Washington, for duty, Lieut. HIRAM C. DODDS, Dufur. To examine the command for nervous and mental diseases, from Talmage, Lieut. CLARENCE U. SNIDER, Portland.

To Vancouver Barracks, Wash., for duty, from Talmage, Lieut. KENNETH W. KINNEY, Astoria.

Pennsylvania

To Alexandro, Cal., Signal Corps Aviation School, for duty, from Mount Clemens, Lieut. HENRY MacV. SMITH, Pittsburgh.

To Army Medical School for instruction, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Lieuts. EDWARD H. McCLISTER, Kittenning; EDGAR B. SLOTERBECK, Monessen; WALTER W. SCHMID, Pittsburgh.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. JULIUS A. BLASSER, Philadelphia. For duty, and on completion *to his proper station*, from Camp Meade, Lieuts. RALPH L. ENGLE, ABRAHAM TRASOFF, Philadelphia.

To Camp Colt, Gettysburg, Pa., from Walter Reed General Hospital, Lieut. JOHN W. BANCROFT, Johnstown.

To Camp Devens, Ayer, Mass., for duty, from New Haven, Lieut. FRANK F. D. BECKFORD, Harrisburg.

To Camp Dix, Wrightstown, N. J., for duty, from New York City, Lieut. THOMAS L. McCULLOUGH, Homewood.

To Camp Hancock, Augusta, Ga., as assistant to camp surgeon, from Fort Oglethorpe, Major SENECA EGBERT, Philadelphia. For duty, Lieut. DANIEL W. FRYE, Pittsburgh.

To Camp Jackson, Columbia, S. C., base hospital, Lieuts. ALBERT W. FISHER, Fountain Springs; ABE K. WEAVER, EDWARD I. WOLFE, Ja., Philadelphia.

To Camp Las Casas, San Juan, Porto Rico, as orthopedic surgeon, from Camp Dix, Lieut. LOUIS H. MAYER, Ja., Johnstown.

To Camp Lee, Petersburg, Va., for duty, Lieut. SAMUEL LER. BOSSARD, Saegerstown.

To Camp Meade, Annapolis Junction, Md., base hospital, Capt. HARRY S. CARMANY, Philadelphia. For duty, Lieuts. HERBERT H. BOYER, Kunkletown; RAMON J. SIFRE, Philadelphia; JOHN R. CAROTHERS, Smock.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieut. HARRY J. OWENS, Hazleton.

To Camp Upton, L. I., N. Y., for duty, Lieut. CLARENCE H. MILLER, Media.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Meade, Capt. HENRY G. MUNSON, Philadelphia.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from duty as a private, Lieut. AUDRA H. YARNALL, California.

To Edgewood, Md., for duty, Capts. ANDREW HUNTER, McKeesport; JOHN W. FEARN, Wattsburg.

To Fort Des Moines, base hospital, from Camp Lee, Lieut. LLEWELLYN I. THOMAS, Burnham.

To Fort Oglethorpe for instruction, Capt. CHARLES N. MONTGOMERY, Philadelphia; Lieut. IRWIN J. OBER, Greensburg.

To Fort Snelling, Minn., for temporary duty, Capt. JOSIAH T. BUNTING, Philadelphia.

To Fort Thomas, Ky., with the board examining the troops for cardiovascular diseases, Capt. JOSEPH H. BARACH, Pittsburgh.

To Hoboken, N. J., for duty, Capt. ISAAC H. ALEXANDER, Williamsburg; Lieut. WILLIAM K. SHEA, Philadelphia; from Camp Custer, Major ELMER C. JACKSON, Pittsburgh; from Camp Grant, Lieut. CHARLES H. KIRK, Homer City; from Camp MacArthur, Lieut. ROBERT W. RICHARDS, Shingle House; from Camp Upton, Lieut. THAD J. McCRISTIN, Lucerne Mines.

To Lakewood, N. J., for duty, Capt. ROBERT J. HENDERSON, Bewmansville.

To Milwaukee, Wis., Chicago, Ill., and *Washington, D. C.*, for duty, from Madison, Wis., Major HENRY D. JUMP, Philadelphia.

To New Haven, Conn., for duty, Lieut. JULIUS H. GOLDSTEIN, Pittsburgh.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Pike, Lieuts. LEROY UMBURN, Albion; JAMES W. SILLIMAN, Bradenville.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Lee*, Petersburg, Va., base hospital, Lieut. ARTHUR E. S. CASEY, Philadelphia. On completion *to Camp Meade*, Annapolis Junction, Md., base hospital, Lieut. EARL E. REBHORN, Scranton. On completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Lieut. LOUIS S. DUNN, Chester. On completion *to his proper station*, from Camp Meade, Lieut. CHARLES S. FOX, Philadelphia; from Camp Wheeler, Lieuts. EDWARD Y. ORD, McKeesport; WILLIAM J. STEWART, Pittsburgh. On completion *to Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort Slocum, Major LOUIS A. SPAETH, Philadelphia.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to his proper station* from Camp Zachary Taylor, Capt. HOMER S. WILSON, Grove City. On completion *to Camp Sevier*, Greenville, S. C., base hospital, Lieut. JACK B. HAMILL, Ligonier.

To Pittsburgh, Pa., for duty, from Camp Lee, Major EWING W. DAY, Pittsburgh.

To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion *to Walter Reed General Hospital*, Takoma Park, D. C., for temporary duty, Lieut. JOSEPH A. PERKINS, Philadelphia.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. CLARENCE H. INGRAM, Pittsburgh; from Camp Logan, Lieut. EDWARD PARDOE, South Fork.

To Williamsbridge, N. Y., for observation and treatment, from New York City, Lieut. JOHN H. BENNETT, York.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Capt. BENJAMIN F. ROYER, Harrisburg.

Porto Rico

To Camp Las Casas, San Juan, Porto Rico, for duty, Lieuts. JOSE F. GONZALES, Lares; FRANCISCO R. DE JESUS, Ponce; PASCUAL A. RIVERA, San German; SALVADOR GIULIANAI, San Juan.

Rhode Island

To Camp Hancock, Augusta, Ga., for duty, Capt. FRANK A. FEARNEY, Providence.

To Camp Kelly, San Antonio, Texas, for duty, from Mineola, Capt. ARTHUR W. STEVENSON, Newport.

To Cape May, N. J., for temporary duty, Lieut. FREDERICK N. BIGELOW, Providence.

To Fort Oglethorpe for instruction, Capt. WINTHROP G. LINCOLN, Lieut. JOSEPH E. BANNON, Providence.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to his proper station*, from Camp Zachary Taylor, Capt. HARMON P. B. JORDEN, Providence.

South Carolina

To Army Medical School, for instructions, from Fort Oglethorpe, Lieut. COLLINS E. SMITH, Ridgeville.

To Camp Sheridan, Montgomery, Ala., for duty, from Lake Charles, La., Lieut. LONNIEL M. McMILLAN, Florence.

To Hoboken, N. J., for duty, from Camp Beauregard, Lieut. BENJAMIN T. WYMAN, Oswego.

To New York City, Bellevue Hospital, for instruction and on completion *to his proper station*, from Camp Meade, Lieut. LACY W. CORBETT, Bishopville.

South Dakota

To Fort Riley for instruction, Capt. ROBERT M. MALSTER, Carter.

Tennessee

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. HERBERT H. McCAMPBELL, Knoxville.

To Camp Hancock, Augusta, Ga., for duty, Lieut. ARCHIE L. ERWIN, Nashville.

To Camp Lee, Petersburg, Va., for duty, Lieut. SWAN BURRUS, Woodland Mills.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. MARVIN B. CAMPBELL, Lebanon.

To Camp Raritan, Metuchen, N. J., for duty, Capt. JOSEPH H. KARSCH, Memphis.

To Camp Wheeler, Macon, Ga., with the board examining the command for nervous and mental diseases, from Camp Meade, Lieut. WILLIAM B. LUNSFORD, Nashville.

To Fort Sam Houston, Texas, for duty, Lieut. ROBERT F. PATTERSON, Knoxville.

To Hoboken, N. J., for duty, Lieut. CHARLES E. STARNS, Memphis.

To Pittsburgh, Pa., Carnegie Bldg., for instruction, and on completion *to his proper station*, from Camp Sherman, Lieut. THOMAS W. MENEES, Nashville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Zachary Taylor, Lieut. ARA D. SHARP, Murfreesboro.

Texas

To Army Medical School, for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Lieut. JOSEPH H. SHELTON, Kingsville; Lieut. HALL SHANNON, Dallas.

To Camp Hancock, Augusta, Ga., for duty, Capt. CHARLES B. McGLUMPHY, Galveston.

To Camp Jackson, Columbia, S. C., for duty, Capts. LORAC E. HASTINGS, Dallas; DICK P. WALL, Galveston; Lieut. MERT R. STARNES, Temple.

To Camp Kearny, Linda Vista, Cal., base hospital, Capt. RICHARD E. NICHOLSON, Brenham.

To Camp Lewis, American Lake, Wash., as assistant to camp surgeon, from Fort Riley, Major IRVY L. McGLASSON, Waco.

To Camp Logan, Houston, Texas, base hospital, Capt. ROBERT L. OWENS, Delhart.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. NAT. M. KENNEY, San Antonio; from Fort Bliss, Lieut. ERNEST W. NITSCHE, Dallas.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Apache, Capt. ROBERT H. McLEOD, Palestine.

To Del Rio, Texas, for duty, Capt. CLAUDE C. HIGGINS, San Antonio; from Camp Zachary Taylor, Lieut. ROSCOE ETTER, Hubbard.

To Fort Apache, Ariz., for duty, Lieut. TRUMAN C. TERRELL, Fort Worth.

To Fort Bliss, Texas, for duty, Lieut. WHITMEL H. JONES, Humele.

To Hoboken, N. J., base hospital, Lieut. GORDON B. McFARLAND, Ladonia. For duty, Lieut. WILLIAM THOMAS, Mahank; from Camp Dodge, Lieut. THERON B. BOND, Fort Worth; from Camp Travis, Lieut. ALLEN JOHNSON, San Antonio; from Fort Riley, Lieut. JOHN R. LEWIS, Gainesville.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Capt. CHARLES C. GREEN, Houston. On completion *to Camp Shelby*, Hattiesburg, Miss., base hospital, Lieut. ELISHA P. ROBBINS, Houston. On completion *to Walter Reed General Hospital*, Takoma Park, D. C., for temporary duty, Capt. JAMES A. HILL, Houston, Lieut. CHARLES E. COLLINS, Alvin.

To Otisville, N. Y., for duty, from New Haven, Lieut. IVY STANSELL, Sanderson.

To report to the commanding general, Southern Department, for assignment to duty, Lieut. BASCOM LYNN, San Angelo; from Fort Sam Houston, Capt. FRANK L. PASCHAL, San Antonio.

To Richmond, Va., Richmond School Board, to make physical examinations and give medical attention to the drafted men enrolled at this institution, and on completion *to his proper station*, from Camp Lee, Lieut. WALTER L. JACKSON, Dallas.

To Rockefeller Institute for instruction in the treatment of infected wounds and on completion *to Camp Meade*, Annapolis Junction, Md., base hospital, Capt. EDWIN B. KENNER, Galveston. On completion *to Cape May, N. J.*, for duty, from New York City, Lieut. JOHN E. QUAY, Waco.

To Sacramento, Cal., Signal Corps Aviation School for duty, from Waco, Lieut. V. FRANK HOPKINS, Thrall.

To San Antonio, Texas, for duty, from Houston, Capt. THOMAS F. BRYAN, Dublin; Lieut. DAVID L. LOWRY, Teague.

To Waco, Texas, Rich Field, Signal Corps Aviation School, for duty, Capt. WILLIAM F. CURRAN, Waco.

To Wichita Falls, Texas, Call Field, Signal Corps Aviation School, for duty, Lieut. MILTON C. WILLIAMS, San Marcas.

To Williamsbridge, N. Y., for duty, from Fort Oglethorpe, Capt. IRA E. PRITCHETT, Houston. For observation and treatment, from New York City, Capt. WILLIAM R. FICKESSEN, San Antonio.

Utah

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Grant, Lieut. CLARENCE S. GARDNER, Kaysville.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Pike, Capt. WALTER E. WHALEN, Ogden.

To report by wire to the commanding general, Western Department, for assignment to duty, Capt. FREDERICK W. TAYLOR, Provo.

To Sacramento, Cal., Signal Corps Aviation School, for duty, from Waco, Lieut. RAY T. WOOLSEY, East Salt Lake City.

Vermont

To Camp MacArthur, Waco, Texas, as sanitary inspector, from Plattsburg Barracks, Major EDWARD A. TOBIN, North Bennington.

To Hoboken, N. J., for duty, Capt. JOHN R. PLATTON, Fairfield; Lieut. GEORGE G. HALL, Woodbury; from Camp Upton, Lieut. GEORGE C. RUBLEE, Hardwick.

Virginia

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Lieut. MARSHALL L. BOYLE, Jr., Richmond.

To Camp Crane, Allentown, Pa., for duty, Major HUGH H. TROUT, Roanoke; Lieuts. ALFRED P. JONES, CARL C. WOLFF, Roanoke.

Base hospital, from Army Medical School, Lieut. ALBERT P. TRAYNHAM, Richmond.

To Camp Hancock, Augusta, Ga., for duty, Lieut. ALEXANDER A. SIZER, Schuyler.

To Camp Lee, Petersburg, Va., base hospital, from Hoffman's Island, Lieut. BEVERLY P. ECKLES, Richmond; from Williamsbridge, Lieut. EDGAR W. YOUNG, McKenney.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. ELIJA M. HICKS, Roanoke.

To Camp Meade, Annapolis Junction, Md., for duty, Lieuts. WILLIAM KARP, Portsmouth; CHARLES B. BAUGHMAN, Rural Retreat.

To Fort Monroe, Va., for duty, and on completion *to New York City*, Neurological Institute, from New York City, Major BLANTON HILLSMAN, Richmond.

To Fort Oglethorpe for instruction, Lieut. MARIANO B. CABALLERO, Petersburg.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. ISAAC H. GOLDMAN, Richmond; from Fort Oglethorpe, Lieut. JOSEPH L. McCABE, Richmond.

To New York City, Cornell Medical College, for instruction in military roentgenology, and on completion *to Hoboken, N. J.*, base hospital, from Camp Dix, Lieut. PATRICK N. CARROLL, Rio Vista.

The following order has been revoked: *To Fort Des Moines, Iowa*, for instruction, Lieut. MOSES CLAYBOURNE, Boone Mill.

Washington

To Camp Fremont, Palo Alto, Cal., base hospital, from Camp Kearny, Capts. RICHARD R. LYON, Bothell; FOREST A. BLACK, EDWARD P. FICK, Seattle; WILLIAM WILT, Steilacoom, Lieuts. HOWARD C. RANDOLPH, Aberdeen; GUY E. MARCY, Montesano; WILLIAM C. KANTNER, HOWARD J. KNOTT, Seattle.

To Camp Lewis, American Lake, Wash., for duty, Lieut. YNGVE J. NYVALL, Seattle.

To Fort Riley for instruction, Lieut. LUNSFORD M. THOMPSON, Spokane.

The following order has been revoked: *To Camp Kearny*, Linda Vista, Cal., base hospital, Lieut. BERTON E. FLEMING, McCreary.

West Virginia

To Camp McClellan, Anniston, Ala., as orthopedic surgeon in the camp, from Fort Oglethorpe, Lieut. BYRON W. STEELE, Mullens.

To Camp Sherman, Chillicothe, Ohio, for duty, Capts. ORRA F. COVERT, Moundsville; THOMAS R. MEIGHEN, Wheeling.

To Newport News, Va., for duty, from Camp Morrison, Lieut. RALPH H. BOICE, Sistersville.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Pike, Lieut. REECE M. PEDICORD, Elm Grove.

To Pittsburgh, Pa., Carnegie Building, for instruction, and on completion *to his proper station*, from Camp Sherman, Lieut. JOHN E. MILLER, Wilden.

To Riverside, Cal., Signal Corps Aviation School, for duty, from Arcadia, Lieut. HARRY B. PARKER, Williamson.

The following order has been revoked: *To Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Fort McPherson, Lieut. WILLIAM D. LEWIS, Beckley.

Wisconsin

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. ARTHUR CHARBONNEAU, Green Bay.

To Camp Pike, Little Rock, Ark., as a member of a board examining the command for tuberculosis, from Fort Riley, Capt. HENRY C. CALDWELL, St. Croix Falls. For duty, Lieut. JOSEPH P. SCHLAIKOWSKI, Milwaukee.

To Chicago, Ill., Northwestern University School of Medicine, for instruction, Capt. ERNEST L. BOLTON, Chilton. Presbyterian Hospital, for instruction, and on completion *to Camp Bowie*, Fort Worth, Texas, base hospital, Lieut. HERBERT F. WOLTERS, Milwaukee. On completion *to Camp Grant*, Rockford, Ill., base hospital, Lieut. TIMOTHY J. HOWARD, Milwaukee. On completion *to his proper station*, from Camp Dodge, Capt. PAUL J. LEWIS, Bloomington.

To Hoboken, N. J., for duty, from Camp Mills, Major E. J. BARRETT, Sheboygan; from Camp Custer, Capt. ALBERT A. MAURER, La Crosse; from Fort Oglethorpe, Capt. FRANK E. DARLING, Milwaukee.

To Lonoke, Ark., Signal Corps Aviation School, for duty, from Houston, Capt. PATRICK R. MINAHAN, Fond du Lac.

To Otisville, N. Y., for duty, from New Haven, Capt. MICHAEL R. WILKINSON, Oconomowoc.

The following order has been revoked: *To Camp Kelly*, San Antonio, Texas, for duty, from Camp MacArthur, Lieut. GEORGE W. HARRISON, Ashland.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Section Officers.—At the annual meeting of the Illinois State Medical Society, Dr. Wesley H. Peck, Evanston, was elected chairman of the eye, ear, nose and throat section, and Dr. Frank Allport, Chicago, was elected secretary of the section.

Vaccination Rule to Be Enforced.—On account of the increasing epidemic of smallpox throughout Illinois, the officials of the state board of health are urging stringent enforcement of the vaccination rule. The board suggests that every person not previously vaccinated within a five-year period be vaccinated. A prevention and treatment propaganda by means of moving picture films for use in all theaters has been started by the state department of health.

Personal.—Dr. Clarence W. East, Springfield, is reported to have passed first in the examination for chief of the division of tuberculosis of the department of public health.——A reception was given by the Bureau County Medical Society at Princeton, May 28, in honor of Dr. Oliver J. Flint, Princeton, who has been called to army service. Dr. Rolando H. Henry, Tiskilwa, was the toastmaster. Dr. Samuel W. Hopkins, Walnut, presented the toast, "Dr. Flint as a Citizen"; Dr. John H. Franklin, Spring Valley, "Dr. Flint as a Physician"; Dr. Charles C. Scott, Princeton, "The Physician's Place in War"; Dr. Joseph M. O'Malley, Ohio, "The Physician Patriot," and Dr. Alfred E. Owens, Princeton, "A Memorial of Friendship."——Dr. Charles H. Spencer, Wheaton, is said to have been sentenced, May 10, to imprisonment for thirty days in the Wheaton jail, by Judge Landis, on a charge of violating the draft law.

Plan for Tuberculous Soldiers.—A plan is suggested whereby the central division of the American Red Cross, the Illinois State Department of Public Health, and the Illinois Tuberculosis Association agree to cooperate in securing adequate care and treatment for the returned tuberculous soldier, whether he may or may not have been discharged in line of duty. This plan includes the notification of the return of tuberculous soldiers to the central division of the Red Cross, by the home service section of the local chapter, which will then get in touch with the soldiers and ascertain the facts desired. The Illinois Tuberculosis Association will furnish to the central division of the American Red Cross complete records of all returned tuberculous soldiers with whom communication has been established or whose return has been reported to the association. In the shortest practicable time, then, it will have all returned tuberculous soldiers examined, their cases diagnosed and the proper methods of treatment outlined, and it will report on these matters to the central division. The Illinois Tuberculosis Association will enlist the services of experts in the diagnosis of tuberculosis, and have competent nurses as the necessity arises. The expenses of transportation to the central examining points are to be advanced by the local service section of the Red Cross, providing the patient is unable to pay them himself. The special examiners will cooperate with the local health officers so that the home service section may be in touch with the returned soldiers at all times, and the local health officer may be enabled to protect the interests of the civil population. The results of all examinations are to be reported to the state department of public health. In the interim between the return of the tuberculous soldier and his examination and the outlining of plans for his more permanent care, the home service section of the American Red

Cross will render the returned soldier such care as he may require. The temporary or permanent housing of a returned soldier, in the county almshouse will not be countenanced by the American Red Cross. The organization will pay one third of the expense of sanatorium or other care, providing the remaining two thirds can be secured from individuals or special agencies. All records are to be open to representatives of all parties to the agreement, and complete reports of progress are to be sent frequently to the central division of the American Red Cross.

Chicago

Personal.—Dr. Thomas H. Boughton has been appointed coroner's physician, to succeed Dr. William H. Burmeister, who has started for France.——Dr. Nathaniel H. Schaffner, charged with violation of the Harrison Narcotic Law, is said to have pleaded guilty to the unlawful sale of drugs and to have been sentenced to a term of two years' imprisonment in the federal penitentiary, Leavenworth.——"Dr." Richard Langfield is said to have been fined $100 and costs and sentenced to six months imprisonment by Judge Haas, May 14, on the charge of practicing medicine without a license.

Hospital Car.—The new hospital car, which is to be used in the transportation of the patients from the Psychopathic Hospital direct to the state hospitals at Dunning, Elgin and Kankakee, was open for inspection at the Psychopathic Hospital, June 4, from 1 to 5 p. m. The car, built by the Chicago Railways Company at a cost of $16,000, has accommodation for twenty-four male patients, seats for twenty and cots for four, and fourteen female patients with seats for twelve and cots for two. The car is provided with two toilet rooms, ice water, and has additional doors at the end through which stretchers may be carried into the car. The first trip of the car will be made to Dunning, on June 13, and on the following day a trip to Elgin or Kankakee will be made.

INDIANA

Vincennes Physician Found Guilty.—Dr. Wilhelm T. von Knappe, Vincennes, who recently was found guilty in federal court and sent to jail for one day, on the charge of sending obscene literature through the mail, entered a plea of guilty to the charge pending in the Knox Circuit Court.

Personal.—Dr. Anexamander M. Hayden has been appointed president of the Evansville Board of Health, succeeding Dr. Carl G. Viehe, deceased.——Dr. Otis M. Keyes, Dana, is critically ill on account of cerebral hemorrhage.——Dr. Charles E. Caylor, Pennville, has moved to Blufftown where he will open a private hospital.——Dr. Giles E. Mowrer has resigned as chief physician at the Indiana Reformatory, Jeffersonville.——Dr. Anexamander M. Hayden has been elected president, Dr. Gardner C. Johnson, vice president, and Dr. Walter R. Cleveland, secretary, of the Evansville School Clinic for Indigent Children.——Lieut. Carl L. Souder, Columbia City, has been ill with bronchial pneumonia in the base hospital at Camp Grant, Rockford, Ill.

MARYLAND

Nurses in Service.—At the last session of the Maryland State Nurses' Association, held last week at Cumberland, the president submitted a report which showed that of the graduate nurses in Maryland, more than 500 have registered for Red Cross work, and of this number approximately 250 are already in active service.

Health Officers Named.—The following physicians have been appointed health officers for Carroll County by the county commissioners: Drs. Franklin H. Seiss, Taneytown; Luther Kemp, Uniontown; George L. Wetzel, Union Mills; Harry F. Bare; Milton D. Norris, Eldersburg; William R. S. Denner, Manchester; Lewis K. Woodward, West Minister; Daniel M. Resh, Hempstead; Roland R. Diller, Detour; Abraham T. Cronk, Taylorsville; J. S. Getty; Thomas H. Legg, Union Bridge; Edgar H. Willard, Knoxville, and Daniel B. Sprecher.

Legacy to Hopkins.—The Johns Hopkins University and the Johns Hopkins Hospital have been given a legacy estimated to be valued at $700,000, which is to be divided equally between the university and the hospital. As there were no restrictions placed on its use, it is probable that the income will be used to augment the general funds of the Johns Hopkins. By the same will, the Franklin Square Hospital has received $25,000, the income of which is to be used in the maintenance of a room for those who would be uncomfortable in the free ward.

Personal.—Dr. Nathan R. Gorter, one of the most prominent physicians of Baltimore city, is critically ill at his home. According to his physician, Dr. Gorter's illness began with a severe streptococcus infection of the throat about ten days ago. He immediately developed a high temperature, accompanied by a spread of the infection to the intestinal tract. This was followed by arthritis and facial erysipelas. His condition is only slightly improved.——Dr. Luigi A. Stefano has been appointed health warden for the fifth district by Health Commissioner John D. Blake.——Dr. Eugene McE. Van Ness and Dr. Walter L. Denny, Jr., have been named as members of the board of surgeons in place of Drs. James M. Craighill and William S. Gilroy, who are on the police board. ——Dr. William F. Sappington of Hancock, who was with the British Medical Corps in France and was slightly wounded by a bursting shell six months ago, has been transferred to the United States Army and has been made camp surgeon and commander of a hospital with a capacity of 750 patients, "somewhere in France."——Dr. Edward P. Smith, superintendent of the Mercy Hospital, Baltimore, has resigned to enter private practice. Dr. Smith is a graduate of the class of 1912, College of Physicians and Surgeons, Baltimore, and has been superintendent at Mercy Hospital for five years. He will still retain his connection with the hospital as a member of the visiting staff in the department of general surgery.——Word has been received that Capt. Charles W. Maxson, who was captured in France, April 26, by the Germans, was not injured when taken prisoner. Captain Maxson had been loaned to the British for special trench service and had been decorated with the Distinguished Service Order by the British government.

MASSACHUSETTS

Harvey Cushing Honored in Ireland.—Major Harvey Cushing, M. R. C., on May 25, received an honorary fellowship from the Royal College of Surgeons of Ireland at Dublin. Major Cushing has been abroad for about one year as head of Base Hospital No. 5, the Peter Bent Brigham Hospital unit.

MISSISSIPPI

Appropriation for Sanitation.—The city council of Pascagoula has appropriated $10,000 and the city of Moss Point, $7,000, which, with the $8,000 available from the national government, will make up $25,000 and will be used to introduce proper sanitation into the shipyards district.

State Society Officers.—At the fifty-first annual meeting of the Mississippi State Medical Association, held in Jackson, May 14 and 15, under the presidency of Dr. Willis Walley, Jackson, the following officers were elected: president, Dr. Waller S. Leathers, University; vice presidents, Drs. Ira B. Seale, Holly Springs; William G. Gill, Newton, and William D. McCalip, Yazoo City; secretary, Dr. Thomas M. Dye, Clarksdale; treasurer, Dr. James M. Buchanan, Meridian; councilors, second district, Dr. Billy S. Guyton, University; ninth district, Dr. John C. McNair, Fayette, and tenth district, Dr. Daniel J. Williams, Gulfport. Hattiesburg was selected as the next place of meeting.

MISSOURI

Personal.—Dr. Eugene H. Bullock, St. Joseph, has been appointed director of health of Kansas City.——Dr. Emmett P. North, St. Louis, has been appointed a member of the Missouri State Board of Health, succeeding Dr. Marc R. Hughes, St. Louis, who has resigned to enter military service. ——Dr. William L. Gleaves, Kansas City, sustained a serious injury of the eye in an automobile collision, May 17.

NEW JERSEY

Montclair Physicians Patriotic.—At the annual meeting of the Associated Physicians of Montclair and vicinity, held at Montclair, May 27, a special tribute was paid to seventeen members of the organization who are in military service. Dr. Richard Cole, Newton, was elected president; Dr. Leslie C. Love, Montclair, vice president; Dr. Browne Morgan, Bloomfield, secretary, and Dr. James W. Krichbaum, Upper Montclair, treasurer.

Personal.—Dr. Enoch Hollingshead, Pemberton, and J. Clifford Haines, Vincentown, have been elected members of the board of managers of Pine Rest, the Burlington County Sanatorium for Tuberculosis, New Elizabeth. Dr. D. F. Reamer, Mount Holly, has been made superintendent of the institution and secretary of the board.——J. A. Fetzer

has accepted the presidency of the New Jersey State Conference on Charities and Correction.——Dr. Eugene L. Reed, Atlantic City, was stricken with a cerebral hemorrhage, May 3.

NEW YORK

Personal.—Dr. William H. Heath has been appointed director of hygiene and education of Buffalo, and Dr. Frederick W. Koehler, medical inspector of food industry.

Examination for Health Officers.—The board of health of the Lake George health district announces a competitive examination for the position of full-time health officer at a salary of $3,000 a year and expenses. Application blanks may be secured from Mr. Loyal L. Davis, Glens Falls. The examination will be both written and oral, the latter part of it being held at Lake George, June 14, at 10 a. m. Applicants should state whether they have taken a special course in public health as provided by the Public Health Service, whether they have been exempted from such a course, or whether they are now registered for this course, and, if so, the name of the university where they are registered and when they expect to complete this course.

New York City

Hebrew Asylum Anniversary.—The Brooklyn Hebrew Orphan Asylum celebrated the fortieth anniversary of its founding, May 26, with an elaborate program. Commissioner of Charities Bird S. Coler made the principal address.

Mackay Home Offered as Hospital.—Clarence H. Mackay has offered his country home at Roslyn, L. I., with its 600 acres of fields, drives and buildings, to the American Red Cross for use as a base hospital. It is estimated that without difficulty it could care for 400 or 500 patients.

Red Cross Starts Drive for Nurses.—The Atlantic division of the American Red Cross celebrated Memorial Day by forming committees to direct a drive for nurses which starts next Monday. The Red Cross states that 5,000 nurses are needed now for the American Army abroad and that 25,000 will be needed before the close of the year.

Medical Aid for Palestine.—The New York Chapter of Hadassah, the women's Zionist organization, has completed the equipment of a medical unit for Palestine, consisting of fifty-one physicians and nurses. It has sent out an appeal for $1,000 to meet the cost of a motor truck which is needed. This unit is to form the foundation of a large and permanent system of medical relief work that is to be conducted in Palestine on a basis of assistance to all, irrespective of race or religion.

Hospitals Aid Draft Registrants.—The New York hospitals, in response to an appeal from the government, have notified Adj.-Gen. Charles H. Sherrill that they are prepared to give medical and surgical treatment to those registrants of Class 1, who have been classified as eligible for military service, subject to necessary surgical operation or medical treatment. Dr. Victor C. Pedersen, chief medical officer of the selective draft for New York, will be in charge of this part of the draft work in New York.

Health Department Official Denied Open Trial.—Charges of neglect of duty, inefficiency and incompetence have been preferred against Dr. Lucus P. Brown, director of the bureau of foods and drugs of the health department, by Health Commissioner Copeland. This action has been taken, notwithstanding the promise, made soon after Dr. Brown's suspension, that he would be given an open trial and would be allowed to have counsel and witnesses. It is understood that the public will not be permitted to be present at the hearing.

Greenhut Building for Government Hospital.—The Medical Department of the Army has leased the building formerly occupied by the Greenhut Company Department Store for the period of the war and a year thereafter. The Greenhut building is six stories high and the estimated floor space is 1,000,000 square feet. The government will immediately turn this building into a modern hospital with 4,000 beds. It will be known as the Sixth Avenue Hospital, and will be used as a clearing hospital and for medical cases, the surgical cases being sent to better equipped hospitals nearby.

Poor Milk Raises Infant Death Rate.—The records of the New York City Health Department show that there is an increase of five per 10,000 in the deaths of infants during the five months of 1918, as compared with the corresponding period of 1917. This increase is attributed to impure milk and to lack of nourishment. Commissioner Copeland has planned to confer with the big milk dealers of the city and has ordered the director of the bureau of foods and drugs to begin an exhaustive inspection of all stores handling milk, as well as of the plants of the big milk companies.

OHIO

Fight Against Epidemics.—To prevent the spread of communicable diseases the city council of Toledo has voted to transfer $75,000 to the epidemic fund of the municipal welfare department.

Personal.—Dr. Samuel C. Caldwell has resigned as physician to the Ohio Boys' Industrial School, Lancaster.——Dr. Charles C. Jones, Canton, is said to have been indicted by the grand jury, May 7, on a charge of performing a criminal operation. He was released on a $2,500 bond.

Saving the Children.—Twelve counties of the state saved their respective quotas of children during the three months, even though the Children's Year had not yet opened. These counties, with their quotas, totaling 50, are: Auglaize 4, Coshocton 6, Delaware 4, Gallia 4, Hancock 6, Hardin 6, Huron 3, Morrow 2, Noble 6, Union 3, Van Wert 3, Madison 3. Six of these each saved one more than its quota and two saved two more each, giving an excess saving of ten. Twenty-two cities which saved their quotas, or more than their quotas, are as follows: Delphos, Conneaut, Nelsonville, East Liverpool, Salem, Coshocton, Gallipolis, Xenia, Norwood, Findlay, Kenton, Bellevue, Jackson, Mount Vernon, Bellefontaine, Elyria, Piqua, Circleville, Mansfield, Tiffin, Bowling Green, Wapakoneta. Their total saving was seventy-four babies. Of this total saving of 134 in twelve counties and twenty-two cities, all but the thirteen saved in the state at large was neutralized by the records of thirty-six counties and thirty cities, which showed a loss as compared with 1916. In this group Cincinnati lost fifty-eight more than in 1916, and Columbus lost twenty-nine more. Cleveland failed to attain her quota, but saved fifty-eight more than in 1916.

OREGON

Personal.—Dr. William L. Parker, Baker, who is under treatment at St. Vincent's Hospital, Portland, is reported much improved.——Dr. William W. Kimmell, Lebanon, is reported critically ill at his home as the result of a cerebral hemorrhage.

Mackenzie Hall Dedicated.—Mackenzie Hall, the new building of the University of Oregon Medical School, Portland, was dedicated, May 1. Dr. Kenneth A. J. Mackenzie, dean of the medical school, presided. The dedicatory address was delivered by President Ernest H. Lindley, of the University of Idaho. The cornerstone was laid by Governor Withycombe. The compus contains about 21 acres, half of which is to be devoted to medical school buildings; the other half has been set aside for hospital sites.

PENNSYLVANIA

Personal.—Dr. Lincoln R. Light, Lebanon, who has been ill with pneumonia, has recovered and resumed practice.——Dr. William S. Peirce, Warren, is reported to be seriously ill in a hospital in Buffalo.——Dr. Joseph H. Hayes, Lock Haven, is under treatment in the Lock Haven Hospital on on account of paralysis.——Dr. Jane R. Baker, West Chester, has been appointed trustee of the Asylum for the Chronic Insane at Wernersville.——Dr. J. W. Campbell, Elderton, has gone as a medical missionary to Wukari, Northern Nigeria, West Africa.

Philadelphia

Personal.—Dr. Richard D. Burke has succeeded Dr. John H. Remig, resigned, as coroner's physician.——Dr. Alfred Ettinger, head of Christ's Home for Children, suffered a fracture of the skull and other injuries by the overturning of an automobile near Hatboro, April 28, and is under treatment in the Abbington Memorial Hospital.——Dr. Wilmer Krusen, director of health and charities, has been given the degree of Doctor of Laws by the University of Pittsburgh.——Dr. Richard D. Burke, a select councilman from the twelfth ward, was appointed coroner's physician, May 25, succeeding Dr. John H. Remig, resigned.——Mr. John F. McEvoy, chief deputy of the department of internal revenue, was one of the speakers at the West Philadelphia Medical Society, May 28. His subject, "Recent Rulings," related to laws of the department as they affect physicians.

Officers Elected.—At the annual business meeting of the alumni association of the Jefferson Medical College the fol-

lowing officers were elected: president, Dr. P. Brooke Bland; first vice president, Dr. Henry K. Gaskill; second vice president, Edward J. G. Beardsley; third vice president, William S. Higbee; fourth vice president, Dr. J. Leslie Davis; corresponding secretary, Dr. Elmer H. Funk; recording secretary, Dr. Edward J. Klopp; treasurer, Dr. Warren B. Davis. At the annual banquet held at the Arcadia Café, Dr. Chevalier Jackson, the retiring president, was toastmaster.

SOUTH CAROLINA

Personal.—Dr. Francis B. Johnson, Charleston, has been made director of the state laboratory, Columbia, succeeding Dr. Francis A. Coward, who has entered the military service. ——Dr. Herbert E. McDowell, Spartanburg, was struck by an automobile, April 7, fracturing his right arm and sustaining other injuries. He is under treatment at the Spartanburg Hospital.

Palmetto Physicians Meet.—At the twenty-third annual meeting of the Palmetto Medical Association, an organization of colored physicians, dentists and pharmacists, held in Orangeburg, April 25 to 27, Dr. William H. Johnson, Charleston, was elected president; Dr. Seibels R. Green, Orangeburg, vice president; Dr. Jesse H. Thomas, Camden, secretary, and H. H. Cooper, Columbia, treasurer. The 1919 meeting will be held at Denmark.

WISCONSIN

New Medical Infirmary.—The University of Wisconsin reports the receipt of gifts amounting to $100,000 which, with an appropriation of $50,000 from the legislature of 1917, will be used in the construction of a new infirmary for the medical school.

Sanatorium Site Selected.—The location for the Tri-County Tuberculosis Sanatorium for Ashland, Bayfield and Iron Counties has been finally chosen, Salmo, Bayfield County, on Chequamegon Bay being the site selected. Plans are being made, and the construction of buildings will be begun at the earliest possible date. Ashland County has voted $31,500, Bayfield County $26,000, and Iron County $20,000 toward the sanatorium.

CANADA

Second Medical Board of Review.—A second medical board of review has been established in the Toronto Military District. The following are the members thereof: Major Edward B. O'Reilly, Hamilton; Capt. Robert L. Morrison, and Capt. Julian D. Loudon, Toronto.

Dominion Health Commission.—At Ottawa recently, before Mr. Justice Hodgins, Toronto, who is conducting an inquiry for the Ontario government into the extent of feeblemindedness and venereal diseases in that province, Gen. John T. Fotheringham, Toronto, advocated the establishment of a Dominion health commission with plenary powers and authority to enforce treatment and segregation, if necessary, for the purpose of coping with the problem of venereal diseases among the civil population of the Dominion.

Medical Week in Hamilton.—A very successful conference of the medical men completed, Saturday, June 1, one of the largest medical meetings ever held in Canada, as about 1,000 were registered from all over the Dominion. Four medical asociations held their annual meetings, the Canadian Medical Association, the Ontario Medical Asociation, the Health Officers' Association of Ontario, and the Canadian Medical Protective Association. Also, were held the annual meetings of the Canadian Public Health Association, and the Association for the Prevention of Tuberculosis, but these two admit laymen to membership. The secretary of the last organization stated that there is now in Canada accommodation for 3,000 tuberculosis patients, and that more than $900,000 was annually expended on the work. More than $3,000,000 are invested in plants. It was the intention of that association to trace the men with tuberculosis rejected by the army and to treat them. The Canadian Medical Protective Association in its annual reports showed satisfactory progress. It was felt, however, that the association should be better patronized by the profession, as its membership still stays at about 1,000. Dr. Robert H. W. Powell, Ottawa, was reelected president, and Dr. J. Fenton Argue, Ottawa, secretary-treasurer. A feature of the meeting was the poster display of the American Medical Association on the patent medicine outrage. The idea was expressed that some plan for closer association of the two national medical bodies, the A. M. A. and the C. M. A., should be formed in order to carry on successfully a determined campaign to offset this great evil. The Association of Health Officers of Ontario had many exhibits, as well as the health department of Toronto. The latter showed various tests for water and milk, also apparatus in connection with rendering germs visible. The former showed antitetanic serum in all the stages of its preparation. This came from the Connaught Laboratories of the University of Toronto. Since the war began, these laboratories have sent overseas more than 140,000 packages of this product. Dr. J. Alexander Hutchinson was elected president of the Canadian Public Health Association, the acting secretary being Dr. Robert D. DeFries, Toronto. Dr. George R. Cruickshank, Windsor, was elected president of the Health Officers' Association of Ontario, and Col. John W. S. McCullough, Toronto, remains as secretary of the organization. Perhaps, the keenest interest shown by the members of the congress, from a practical and scientific standpoint, was manifested in the address on surgery by Dr. Charles H. Mayo, and in the address on medicine by Dr. Lewellys F. Barker. Cancer was the subject of Dr. Mayo's address. He declared that 200,000 people have it in the United States and that 80,000 die annually from the disease. The death rate in Ontario is about 2,000 per annum. Dr. Barker dealt with heart murmurs, especially as they apply to the rejections in the army. The surgeons passed a resolution calling for the control of the issuance of licenses to surgeons. Whenever such legislation is enacted, it will require all surgeons to take three extra years of study, either in a hospital, or with a qualified surgeon. The officers elected for the Ontario Medical Association were as follows: President, Dr. George S. Cameron, Peterboro; treasurer, Dr. Gordon A. Bates, Toronto; secretary, Dr. Thomas C. Routley. Next year the annual meeting will be held in Toronto.

GENERAL

Pediatric Officers.—At its thirtieth annual meeting held in Lenox, Mass., May 27, 28 and 29, the American Pediatric Society elected the following officers: president, Dr. Edwin E. Graham, Philadelphia; vice president, Dr. Henry Heiman, New York City; secretary, Dr. Howard C. Carpenter, Philadelphia; treasurer, Dr. Charles Hunter Dunn, Boston, and recorder, Dr. Oscar M. Schloss, New York City. The next meeting will be held in Atlantic City.

American Association of Anesthetists Meets.—The sixth annual meeting of this association will be held in Chicago, June 10, at the Auditorium Hotel. A program of papers has been provided. Dr. F. W. Nagle, Montreal, is president of the association, and Dr. Isabella C. Herb, Chicago, is one of the vice presidents; Dr. James T. Gwathmey, now in France, is secretary and treasurer, and Dr. F. H. McMechan, Avon Lake, Ohio, is acting secretary.

Bequests and Donations.—The following bequests and donations have recently been announced:

Polyclinic Hospital, New York City, a gift of $1,000 to be applied to the support of free beds in the ophthalmological service of Dr. Earle Conner.

Emory University and Oglethorpe University, Atlanta, each $5,000 by the will of Dr. William S. Kendrick, senior professor of medicine at Emory Medical College.

Presbyterian Hospital, Philadelphia, $10,000, Polyclinic Hospital, $5,000, and Women's Hospital, $5,000 by the will of Mary L. Baugh, Philadelphia.

Status of Library of the Surgeon-General's Office of the Army Defined and Books to be Added.—While the library of the Surgeon-General's Office of the United States Army has for many years been open freely to the medical profession of the entire country, notwithstanding that the library has been in fact primarily an adjunct to the Army, its public and general status is now officially recognized in a bill passed by the United States Senate on May 17. The bill provides that this being the large general medical library for the use of the medical profession of the United States, in the copyrighting of the books on medical and allied subjects there shall be deposited with the Congressional Library three copies, one of which shall be for file in the library of the Surgeon-General's Office of the United States Army. The bill now goes to the House of Representatives for consideration.

Unauthorized Subscription Peddlers Arrested.—Dr. Charles Ryttenberg, Port Chester, N. Y., writes that he has succeeded in "landing" one of the ringleaders of the subscription fraud that has been worked for several years past—chiefly on members of the medical profession. Among the titles used in this fraud were "United Students Aid Society," "Advance Society of the University of Illinois," "Michigan Educational

Association," "National Educational Society" and "University Progressive Club." On Sept. 18, 1915, Dr. Ryttenberg was a victim to the extent of $5 under the head of "The Michigan Educational Association"; recently, under the guise of the "American Defense Association," an attempt was made to solicit him again, the statement being made that the subscription would assist a man into the Engineering Corps of the United States Army. He called the police and the solicitor was arrested. After three days the solicitor confessed that he and two others had been working the country for some time, and produced the various types of receipts used by them. He also divulged the names of others involved in the scheme.

FOREIGN

"New and Nonofficial Remedies" in France.—The *Progrès Médical* of May 4, just received, gives a description of the work of the Council on Pharmacy and Chemistry of the Americal Medical Association and of its publication "New and Nonofficial Remedies," "founded," it says, "with the aim of informing the members of the medical profession as to the value of the proprietary medicinal articles which flood America." The *Progrès* adds, "Looking over the 1917 edition of this work, we see that of the 500 or 600 products therein inscribed, there are not even ten of French make. More than half of them are manufactured by German firms; the others come from England or are made in the United States. . . . The reason for this, we are told by Monsieur Puckner, president of the Council on Pharmacy and Chemistry, which has charge of the publication of the work, is that the German proprietary pharmaceuticals have been sent in large numbers to America, and consequently a large number were presented for examination by the Council. Another reason for the small number of French proprietaries included is that among those which were sent to America and offered for examination by the Council, many did not comply with the rules governing the admission of proprietary articles to the book 'New and Nonofficial Remedies.'" The *Progrès* then gives in full detail the object of the rules, the contents of the book, the definitions of terms, and the six main rules governing, respectively, composition, identification, direct and indirect advertising, fraudulent claims as to origin, and unwarranted therapeutic claims. The article is published also in the April number of the French *Journal de pharmacie et de chimie.*

The Arsphenamin (Salvarsan) Investigation in Germany.—The *Nederlandsch Tijdschrift* relates that, in reply to an interpellation by one of the deputies, the minister of internal affairs in Germany declared that his study of the subject had shown no grounds for interfering with the use of arsphenamin by the medical profession. The responsibility for its use rests on the physician, and there is no call for the state to interfere. This has elicited a protest from Dreuws, who started the ball rolling two years ago. He published an article in the *Deutsche Zeitung* of Feb. 28, 1918, in which he said that the medical journals have closed their columns to him, but he declared he knows that paralysis, after the use of arsphenamin, has occurred in the proportion of 224 per hundred thousand cases; blindness in 1.3; serious skin lesions in 620; lesions in the brain in 61.3; and deafness, unmistakably due to the arsphenamin, in 16, and, probably due to it in 14.6. He protested that the government inquiry among specialists was like asking brewers whether the use of alcohol should be permitted. The minister in his investigations had found twenty deaths after the use of arsphenamin among the 265,158 cases from the practice of 500 physicians. Dreuws stated that he had heard or read of sixty-seven fatal cases, and warned that cases might escape record, as the blindness or deafness might not develop until weeks after the arsphenamin treatment. Pinkhof, in commenting on this in the *Tijdschrift* mourns that the day has passed when the value of a remedy was determined by physicians. "Nowadays," he says, "the discoverer of the remedy or his friends rush before the public with such claims for the superiority of their product that there is no opportunity for a calm comparative study of it. If we do not prescribe this new 'superior' remedy, we are regarded as being behind the times, or worse. This advertising to the public avenges itself—on the public in the first place, and then also by sapping the confidence of the public in medicine as a whole."

Competitive Examinations for Internships After the War.—The Paris Société médicale des hôpitaux has been discussing ways and means by which medical students now serving in the war will be able to win places as interns after demobilization. Three resolutions were adopted and they are offered for the approval of the profession in general and of the hospital authorities: 1. That each medical student or recent graduate should have his army record carefully made out and verified by signatures, a *carnet de campagne*, on which should be recorded the young man's position and work, the number of months under fire, the number of engagements in which he has taken part, the wounds he has received, citations, decorations, etc., a verified and attested biographical record of his army service during the war. 2. There should be two competitive examinations at a few months' interval, the first being open only to those who have been serving in the army; and only half the vacant posts are to be filled from this first examination. The second examination is open, as usual, to all, including those who failed at the first examination. 3. The principle is advocated of allowing the military candidates a certain number of credits proportionate to the length of their service at the front. The idea is not to give many credits, merely one credit for each six months' work under fire, and half a point for each six months' work in a division ambulance. This plan will give the men from the front a trifling superiority over those who have been in the home zone. In the second competitive examination, it will give to the men who have been under fire a slight advantage over the nonmobilized, women candidates, foreigners, and all those who have been able to carry on their medical studies undisturbed. This will, to an extent, equalize the race between a candidate who recites by heart pages of anatomy learned from a textbook and another candidate who has given the most magnificent proofs of devotion, courage, decision of character, and knowledge through practical experience.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Exclusion of Alien Members.—Last November, when Brazil declared war against Germany, the Sociedad de Medicina e Cirurgia of S. Paulo held a special open meeting and adopted resolutions congratulating the president of the republic for the stand he had taken. At the same meeting it was voted to drop from the membership of the society members of enemy nationality.

Honduras Organizes Public Health Department.—The *Vida Nueva* of Havana reports that Honduras has created the Departamento de Salud Publica and remarks that this represents progress for this Central America republic. It continues "It may not be amiss to refer once more to the fact that for many years there has been a public health service in Cuba, the Secretaria de Sanidad, which is the pride of the country."

Public Health Efforts in Cuba.—The Liga contra el Paludismo, Uncinariasis y Tifoidea Rural was recently organized in Cuba under the auspices of the Public Health Service and the state department of public instruction. The president of the league is Dr. M. G. Lebredo, the secretary, Dr. A. Vieta, and each province is represented on the board, of which Dr. D. Tamayo is chairman. The official organ of the new league is to be the *Eco Cientifico*, published at Ciego de Avila.

New Ophthalmologic Journal in Mexico.—For seventeen years Dr. M. Uribe Troncoso edited the *Anales de Oftalmologia* in Mexico, but with his recent removal to New York, this journal was merged with others to form the *American Journal of Ophthalmology*. The Mexican Ophthalmologic Society, of which he was long president, has now decided to publish its own annals, and the *Anales de la Sociedad Oftalmologica Mexicana* has already made its appearance. Dr. D. M. Velez is director of the *Anales* and perpetual secretary of the society. Summaries of the two leading articles are given in both English and French, and duplicates are published on an insert for convenience of reviewers. The officers of the society for 1918 include Dr. F. Lopez, president; Dr. A. Chacon, vice president, and Dr. E. F. Montaño, perpetual treasurer.

Prizes Open to Spanish-American Physicians.—A Spanish medical journal, *Higia*, published at Madrid, offers a series of prizes for the best article on various topics. Competition is restricted to physicians and medical students of verified Spanish or Spanish-American nationality, and the articles must be sent in anonymously with the name in a sealed envelop on or before Dec. 31, 1919. The *Vida Nueva* for May reproduces all the conditions. The grand prize is for any research work yielding a positive progress for medicine. Six other prizes are offered for the medical bibliographic index of Spain or Spanish-America, from 1900 to 1920, with critical

comment; for the history of medicine in Spanish-America during the fifteenth and sixteenth centuries; the Spanish race in the Spanish-American republics; and the treatment of cancer. Other prizes are offered for students. The executive committee in charge of the matter is seeking the patronage and the financial support of the government in Spain and in the different Spanish-American republics to further this prize competition as an educational and enlightening force. The amount of the prizes naturally will depend on the financial support obtained.

PARIS LETTER

Paris, May 2, 1918.

National Headquarters for Rehabilitation of Crippled and Disabled Men

In order to coordinate the work of the public authorities and the private institutions and organizations which are working for the rehabilitation of soldiers, sailors and aviators disabled by wounds received in the war or who are suffering from diseases contracted during the war, there was recently established l'Office National des mutilés et réformés de la guerre. It will be the function of this commission or office to centralize information concerning the activities of public administrations and private organizations, also to encourage and facilitate the work of readapting the military mutilés for self support; to study legislative dispositions and regulations susceptible of being taken advantage of in their favor; to follow their application, and, in a general manner, to assure them of patronage and the permanent support of the nation, which is their due. The resources of this commission or office are: (1) an annual credit included in the budget of the ministère du travail and of the prévoyance sociale; (2) gifts, donations and legacies of every kind which should be made either to the commission directly, to the *ensemble* or to a definite group of *militaires* or former *militaires mutilés et réformés.*

Determination of the Origin of the Wounds and Diseases of Soldiers

To ascertain the origin of wounds or disease is a matter of great importance to the soldiers. At present, pay is allowed only for wounds or diseases contracted or aggravated while in service. Gratuities or pensions of any kind are given only for infirmities contracted or aggravated while in service or the result of the dangers and fatigues of military life. Finally, for the wives, the death of the husband as the result of the eventualities of war, confers the right to a higher pension. Therefore, Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire has sent out a circular specifying those wounds or infirmities which will be considered as having been contracted while in the service or aggravated thereby, and those which will not be so considered:

(1) Wounds or infirmities contracted while in service or aggravated thereby: All wounds or diseases proceeding from the fatigues or dangers of military service, that is to say, in relation with it, of such a nature as the interested person would not have been exposed to had he not been in the service. (2) Wounds or infirmities resulting from war operations or the eventualities of war: All lesions resulting either from a direct or indirect action of the enemy, or from participating in a premeditated action against the enemy, either preparatory to it or during the action.

(3) Wounds and diseases not incident to service: Those not included in any of the above categories, that is to say, not being caused or aggravated in any sense of the word by military service, its fatigues or dangers, such as traumatisms received and maladies contracted while on furlough or while acting contrary to orders; traumatisms received and diseases contracted outside of the service and the fault of the interested person, for which the state should not be held responsible, such as a quarrel in a saloon, accident of drunkenness; diseases the result of intemperance; hereditary diseases not aggravated by service; diseases existing prior to entrance on military service.

Hospitalization of Army Nurses Who Have Contracted Pulmonary Tuberculosis

The under-secretary of state for the Service de Santé militaire has had arranged two *formations sanitaires,* one for the military nurses who are known to have pulmonary tuberculosis, and the other for those who are suspected of having tuberculosis, or who are in a state of general exhaustion the result of disease or of hard work. The nurses who will come under this ruling will be obliged to make application, supported by a certificate "de visite et de contre-visite," to the under-secretary of state of the Service de Santé militaire.

The Bread Ration of Contagious Disease Hospitals

The attention of the food commissioner has been called to the necessity for new arrangements in regard to the bread ration of the private establishments which hospitalize contagious disease patients or those suffering from severe maladies. Usually they come to the hospital without being accompanied by any one who could dole out the daily bread tickets with which the person in question should be provided. In order to assure these patients of food, M. Victor Boret, the food commissioner, has given instructions to the prefects to invite the mayors to deliver each month to the chiefs of the establishments, who have made demand, tickets intended to replace those which the patients failed to present at the time of their admission. But, in order to avoid using tickets a second time, the chiefs of the establishments will be obliged to force these patients, the members of their family or other persons interested in them, to return the corresponding tickets to the authorities according to the number of days of their hospitalization.

Repatriation of Members of Hospital Units

All the personnel protected by the Geneva Convention will hereafter be repatriated in regular convoys every other month. The first convoy left in February for Constance; the next, in April, for Lyon, and so on alternately. As for those *sanitaires* belonging to units of which the registers or archives have been destroyed, it will suffice that the state from which they came attests to their character.

Citation of American Nurses

The professional devotion of two American army nurses, who have been recommended for the English military medal, has caused each of them to receive a personal letter from General Pershing. The nurses are, Miss Evan Jean Parmales, a reserve nurse, and Miss Beatrice MacDonald, infirmière-major, of the Presbyterian General Hospital. Each continued to care for the wounded after having been wounded herself by an air bomb.

American Libraries in Paris

The medical library of the American Red Cross has been moved to No. 12, place Vendôme. This library contains books and periodicals, both French and English, bearing on the medicine and surgery of war. On the other hand, a reference library on medical subjects has been arranged at No. 6, rue Piccini.

Inauguration of the Franco-Peruvian Hospital

Recently there was inaugurated in Paris a Franco-Peruvian hospital under the auspices of a Peruvian committee of which General Benavides, former president of Peru, is chairman. Besides the members of the Peruvian colony, representatives of the Association des Dames françaises were among those present. The hospital contains eighty beds. The expense of maintenance will be met by the Peruvian colony.

Sale of Troches and Cough Drops

Deputy Laniel having inquired of the food commissioner whether the bakers and confectioners are authorized to sell the various cough drops which can be bought at pharmacies, he received the following reply: "The *pâtes pectorales,* having only a medicinal character, can be sold only by pharmacies. Other analogous products which do not have that character are confectionery and come under the prohibition of the decree of Feb. 12, 1918."

Donation to the Academy of Medicine

The permanent secretary of the Academy of Medicine has been authorized to accept, in the name of the Academy, a legacy of 25,000 francs made by the late Dr. Magnan. The revenue from this sum will be used to establish a triennial prize to be awarded to the author of the best work on mental medicine.

The Fight Against Tuberculosis

On motion of M. Ambroise Rendu, the municipal council of Paris voted the following resolution: The Administration is invited to place at the disposition of the Rockefeller Foundation Commission on Tuberculosis rooms in the city halls and school yards in which the temporary exhibits and the conferences can be held. The Rockefeller Foundation, in pursuance of its propaganda work, recently held a series of conferences at Rennes which were exceedingly successful.

Deaths

John William Langley, Ann Arbor, Mich.; M.D. (hon.), University of Michigan, Ann Arbor, 1871; aged 76; acting assistant surgeon, U. S. Navy, 1862 to 1864; assistant professor of physics in the U. S. Naval Academy, 1867 to 1870; professor of chemistry in the Western University of Pennsylvania, Pittsburgh, 1871 to 1874; professor of chemistry and physics in the University of Michigan, from 1875 to 1889; professor of electrical engineering in the same institution from 1892 to 1905, and since that time emeritus professor of electrometallurgy; a scientist of international repute; died at his home, near Ann Arbor, May 11.

William Austin Macy, King's Park, New York City; College of Physicians and Surgeons in the City of New York, 1885; aged 55; a Fellow of the American Medical Association, and New York Academy of Medicine; superintendent of the King's Park State Hospital for the Insane, since 1904; formerly assistant superintendent of the Manhattan State Hospital, Ward's Island, and Willard State Hospital; died in the King's Park State Hospital, May 21, from cerebral hemorrhage.

Edward Thomas Abrams, Dollar Bay, Mich.; Dartmouth Medical School, Hanover, N. H., 1888; aged 57; a Fellow of the American Medical Association; appointed a member of the State Board of Health in 1911, and at the time of his death president of the board; for several years a member of the state legislature; one of the most prominent and esteemed practitioners of the Copper Country; died at his home, May 21, from heart disease.

Wallace Eugene Hallock, Juneau, Wis.; University of Michigan, Ann Arbor, 1873; aged 71; a member of the State Medical Society of Wisconsin; president of the Dodge County Medical Society; county physician of Dodge County for forty years; and once mayor of Juneau; while visiting Rockford, Ill., May 20, was struck by a street car and died in a hospital in Rockford from his injuries a few hours later.

Martin Stamm, Fremont, Ohio; University of Berne, Switzerland, 1872; aged 70; a Fellow of the American Medical Association; and president of the Sandusky County Medical Society; for several years professor of operative surgery in the College of Physicians and Surgeons, Cleveland; for two terms a member of the local board of education; died at his home, May 22, from heart disease.

Died in the Service
IN FRANCE
LIEUT. WHITNEY H. JOYCE, M. R. C., U. S. ARMY, 1891-1918

Lieut. John Groat Corson, M. R. C., U. S. Army, Binghamton, N. Y.; University of Syracuse, N. Y., 1915; aged 27; who had been on duty with a medical detachment of the British Expeditionary Forces in France, and there contracted tuberculosis and was invalided to England, died in a hospital in London, about May 17, from tuberculosis.

William F. Creasy, Newport News, Va.; University of Maryland, Baltimore, 1890; aged 54; a Fellow of the American Medical Association; formerly president of the City Board of Health, and quarantine officer of the port of Newport News; died at his home, about May 18.

Boyle Travers, St. John, New Brunswick; Dublin, 1847; William Stokes prize-man; aged 93; a member of the New Brunswick and St. John, New Brunswick, Medical Society; who began practice in St. John in 1848; died at his home in that city, April 7, from senile debility.

Edward T. Pendleton, Wellsville, Kan.; University Medical College, Kansas City, Mo., 1899; aged 44; a member of the Kansas Medical Society; who was operated on about three months ago at St. Luke's Hospital, Kansas City, for the removal of gallstones; died May 13.

Joseph E. Heard, Baltimore; College of Physicians and Surgeons, Baltimore, 1882; aged 65; surgeon of the Police Department from 1888 to 1900, and a health warden of Baltimore from 1908 to 1918; died in the Church Home and Infirmary in that city, May 21.

Lieut. Whitney Hotaling Joyce, M. R. C., U. S. Army, Unadilla, N. Y.; Albany, N. Y., Medical College, 1913; aged 28; a Fellow of the American Medical Association; who was on duty with the Royal Warwickshire Regiment, British Expeditionary Forces; died in France, from wounds, May 17.

Capt. Frederick David Clair, M. R. C., U. S. Army, Philadelphia; Medico-Chirurgical College of Philadelphia, 1915; aged 27; attached to the Forty-Third Field Ambulance, British Expeditionary Forces in France; is reported to have been killed in action recently.

Herbert Aaron Lord, Pueblo, Colo.; Gross Medical College, Denver, 1898; aged 45; a Fellow of the American Medical Association; county physician of Saguache County, Colo., for several years; died in St. Mary's Hospital, Pueblo, May 15, from cerebral hemorrhage.

Hamilton Earle Russell, Easley, S. C.; Southern Medical College, Atlanta, Ga., 1895; aged 48; a Fellow of the American Medical Association; local surgeon for the Southern Railroad; died suddenly while making a professional call, May 16.

John Snyder McPheeters, Hardinsburg, Ind.; Cincinnati College of Medicine and Surgery, 1860; aged 81; assistant surgeon and later surgeon of the twenty-third Indiana Volunteer Infantry, during the Civil War; died at his home, May 11.

Stephen William Driver, Cambridge, Mass.; Harvard Medical School, 1863; aged 85; a member of the Massachusetts Medical Society; a veteran of the Civil War; consulting physician to the Cambridge Hospital; died at his home, May 21.

James Piner Bartley, Bartlesville, Okla.; Kentucky School of Medicine, Louisville, 1898; aged 51; a Fellow of the American Medical Association; died in the Bartlesville City Hospital, May 20, from cerebral hemorrhage.

Benjamin J. Alexander, Hiawatha, Kan.; Drake University, Des Moines, Iowa, 1882; aged 62; a Fellow of the American Medical Association; and formerly a member of the State Board of Health; died at his home, May 20.

James H. Roll, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1872; aged 72; a member of the Ohio State Medical Association; a veteran of the Civil War; died at his home, May 16, from cerebral hemorrhage.

Merritt Byron Fairchild, Syracuse, N. Y.; Albany, N. Y., Medical College, 1868; aged 79; health officer of Syracuse for two terms, and for four years physician to the state penitentiary; died at his home, May 16.

William Kennedy, Hamilton, Ont.; Trinity Medical College, Toronto, 1875; aged 70; formerly president of the Conservative Association of Norfolk County; died at the home of his daughter in Hamilton, May 16.

Lieut. Edward Everett Tredway, M. R. C., U. S. Army, Pasadena, Calif.; Denver and Gross College of Medicine, Denver, 1908; aged 39; a Fellow of the American Medical Association; died May 19.

Joseph J. Evans, Winchester, Ind. (license, Indiana, 1897); aged 78; a practitioner of Winchester since 1867; for eight successive terms coroner of Randolph County; died at his home, May 16.

Willie Estes Cobb, Blytheville, Ark.; Louisville, Ky., National Medical College, 1904; aged 43; a colored practitioner; was shot and killed, May 9, in an altercation over boundary lines.

Charles E. Thompson, Stephens, Ark.; Kentucky University, Louisville, 1906; aged 37; a member of the Arkansas Medical Society; died at his home, May 17, from tuberculosis.

Samuel Kennedy Christy, Willshire, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 65; formerly a Fellow of the American Medical Association; died at his home, May 16.

Theodore Milan Davenport, Iowa; (license, Iowa, 1890); aged 63; died in Mercy Hospital, Davenport, May 17.

Joseph Henry Martin, Los Angeles, Calif.; Dartmouth, Medical School, Hanover, N. H., 1871; aged 75; for thirty-three years a resident of Los Angeles; died at his home, May 9.

Adolph Boppart, Richmond, Ind.; University of Zurich, Switzerland, 1856; aged 82; for more than fifty years a pharmacist of Richmond; died at his home, May 13.

H. C. Hollingsworth, Terre Haute, Ind.; Rush Medical College, 1864; aged 75; a veteran of the Civil War; died at his home, March 7, from malignant disease.

Archibald Ybet Martin, Moundsville, W. Va.; Kentucky School of Medicine, Louisville, 1890; aged 57; died at his home, May 17, from disease of the kidney.

Luke H. Kelly, Hammond, Ind.; University of Illinois, Chicago, 1899; a member of the Indiana State Medical Association; died at his home, May 16.

Lewis E. Meeker, Brooklyn; Detroit Medical College, 1872; aged 67; formerly president of the Eastern District Savings Bank; died at his home, May 23.

William W. Roberts, Athens, Ga.; Medical College of Georgia, Augusta, 1891; aged 73; died at his home, at Princeton, near Athens, May 16.

Rebecca H. Reynolds Longshore, National City, Calif.; Pennsylvania Medical University, Philadelphia, 1861; aged 81; died at her home, April 17.

Albert J. Cavert, Nashville, Tenn.; University of Nashville, Tenn., 1872; for many years a teacher in the city schools of Nashville; died about May 11.

H. B. Godby, College Park, Ga.; Atlanta, Ga., Medical College, 1859; aged 86; died at his home, April 9, from paresis following pneumonia.

John Parker Cartwright, Bowling Green, Ky.; Bellevue Hospital Medical College, 1882; aged 67; died at his home, May 9, from carcinoma.

William Hall Carleton, Toronto, Ont.; University of Toronto, 1883; aged 62; died at his home, February 14, from cerebral hemorrhage.

John Newton, Deseronto, Ont.; Queens University, Kingston, Ont., 1866; aged 75; died at his home, February 13, from arteriosclerosis.

Robert Milliken Davis, Wrightsville, Pa.; University of Pittsburgh, 1897; aged 57; died at his home, March 23, from cerebral hemorrhage.

Charles Francis Adams Walsh, New York City; Long Island College Hospital, Brooklyn, 1895; aged 55; died at his home, March 18.

Freeman Hall, Kalamazoo, Mich.; Medical School of Maine, Portland, 1855; aged 84; died at his home, March 30, from acute cystitis.

David B. Snodgrass, Marion, Ind.; Physio-Medical College, Cincinnati, 1878; aged 81; died at his home, May 11, from heart disease.

Owen Franklin Parson, Hazelton, Pa.; Jefferson Medical College, 1872; aged 69; died at his home, May 11, from chronic nephritis.

Edward Chapman Hayman, Lincoln, Neb.; University of Nebraska, Omaha, 1908; aged 34; died at his home, March 13.

Isaac A. Wesson, Wingo, Ky.; Vanderbilt University, Nashville, Tenn., 1881; aged 79; died at his home, May 14.

Edward Channing Folsom, Santa Monica, Calif.; Harvard Medical School, 1868; aged 73; died at his home, May 11.

John Perrins, Boston; Eclectic Medical Institute, Cincinnati, 1873; aged 79; died at his home, May 17.

Marriages

LIEUT. LOUIS TOMPKINS WRIGHT, M. R. C., U. S. Army, Atlanta, Ga., on duty at Camp Upton, N. Y., to Miss Corinne M. Cooke of New York City, May 16.

JESSE WILLIS AMEY, New York City, to Miss Grace May Hoffman of Schenectady, N. Y., May 8.

SQUIRE WILBERT STONE, to Miss Julia Louise Des Loges, both of New York City, May 21.

THOMAS J. CUMMINS, Mineville, N. Y., to Miss H. Densey Mitchell of Baltimore, April 22.

VICTOR I. ENGLERT, to Mrs. Cora Kors, both of Chicago, May 23.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PACKERS PRODUCT COMPANY DECLARED A FRAUD

The Federal Authorities Close the Mails to a Fakish Concern

The Packers Product Company, San Diego Building, 311 River Street, Chicago, was the name under which one Fred A. Leach sold a nostrum, "Orchis Extract." The sales were made on the mail-order plan. In December, 1917, Leach was called on by the federal authorities to show cause why a fraud

ORCHIS EXTRACT
THE GREATEST KNOWN TREATMENT FOR WEAK MEN
This package contains one months treatment
PACKERS PRODUCT CO.
San Diego Bldg. Chicago, Ill.
Directions
For Taking Orchis Extract
Take one tablet before each meal. Swallow whole; do not crush in mouth; use water if necessary.
While taking this treatment the bowels should be kept in well regulated condition.

Reproduction in miniature of the labels on the boxes in which "Orchis Extract" was mailed.

order should not be issued against his business and Jan. 10, 1918, was fixed as the date for the hearing. His attorney, Frank H. Repetto of Chicago, made application that the case be continued to January 14. On January 11 a written answer was submitted by the attorney accompanied by certain exhibits. These were carefully considered, together with the evidence against Leach. As a result the mails were closed to the Packers Product Company.

Judge Lamar, Solicitor for the Post Office Department, in his memorandum to the Postmaster-General recommending the issuance of a fraud order, declared the facts regarding the Packers Product Company to be, in part, as follows:

A MISLEADING NAME

"The business complained of consists of the sale of a preparation known as 'Orchis Extract' by means of representations made through the mails in furtherance of a scheme to defraud. Fred A. Leach is the promoter of this scheme and operates it under the name Packers Product Company. This trade name was obviously selected and is continuously used for the purpose of leading persons to believe that they are dealing with a responsible concern engaged in the meat packing business and utilizing one of its by-products in the alleged manufacture of the aforesaid preparation which is offered to the public as a curative agent in cases of lost sexual power and kindred ailments. This purpose is clearly evidenced (1) by the name itself and (2) by the print of buildings and pens enclosing cattle on the back cover of the booklet and upon the form letters [See illustration accompanying this article.—Ed.] distributed to the public through the mails and carrying representations hereinafter referred to concerning the alleged curative properties of said preparation.

"The name 'Packers Product Company' is misleading for the reasons above set forth and the word 'manufacturers of Orchis Extract' are false, for the evidence shows that this respondent is not a manufacturer of this extract but the remedy sold by him and alleged to contain this substance is purchased by respondent from various manufacturing chemists. The print thus used with intention to mislead and thereby induce persons to purchase the preparation represents in fact some of the packing house buildings and slaughter pens of Armour and Company at Chicago, Illinois, in which this respondent has no interest and from which he buys none of the ingredients used in the compounding of the said preparation.

"'Orchis Extract' is said to be a substance obtained from the testicles of rams. A chemical analysis made by the Bureau of Chemistry of the Department of Agriculture shows

that Orchis Extract Tablets, the preparation sold by respondent, consists of sugar of milk, orchitic animal tissue, and agents used in compressing the tablets."

FALSE AND RIDICULOUS CLAIMS

The Solicitor then quotes extensively from the advertising booklet sent out by Leach. Some of the characteristic claims follow:

"Pre-senility, or premature old age, is a condition which can in most cases be relieved by a careful and conscientious treatment of Orchis Extract."

"Orchis Extract has a special action on the glands of the reproductive organs."

"Its action is that of a great vitalizer—tending to increase their activity, to aid their secretory functions and promote the normal development. It is specifically indicated in cases of atrophy of the private organ so common in cases of sexual abuses. Orchis Extract operates in a most remarkable manner in overcoming these conditions."

"Orchis Extract, when introduced into the blood, should bring about a richer supply of blood so that the cold and shrunken parts of the body must return to vigor and vitality; ambition will be restored by stronger and healthier nerve tissues and muscles, and relief or a cure is sure to follow."

"Orchis Extract is a reliable compound for restoring lost vitality, renewing cell life, resulting in restoring life, strength and development to the organs of man."

"Orchis Extract is being successfully used in cases of Nervo-Sexual Troubles, such as Nervous Debility, Lost Manhood, Night Losses, and Undeveloped Parts. It is for the weak man, for the debilitated man, for every man who needs a reliable remedy to renew his life and vitality, enrich the blood, tone up the stomach and aid digestion, to soothe the nerves, to overcome vital exhaustion, to stimulate the liver and kidneys and to send new energy and new sustenance to every cell and tissue of the body. To nourish the brain, strengthen the memory and to renew life with health and strength."

WHAT THE EVIDENCE SHOWED

Judge Lamar's memorandum continues:

"The evidence shows the diseases and diseased conditions for which this remedy is recommended cannot be relieved or cured by its use; that the remedy taken internally can have no effect whatever on such diseases and diseased conditions, and that it is of no value in their treatment; that the condition known as 'Lost Manhood' may arise from various causes, and that no one remedy even if assumed to possess

Packers Product Co.
MANUFACTURERS
ORCHIS EXTRACT
FOR WEAK MEN
SAN DIEGO BLDG. CHICAGO, ILL.
Dear Sirs—
In calling your attention to our Orchis Extract we honestly believe we are offering you the very best method and remedy for regaining lost manly power.
In submitting to you our proposition relative to this product

Reproduction (reduced) of the letterhead used by Leach, obviously for the purpose of leading the public to think that the packers' (Armour's) whose plant is here shown, were behind the business. As a matter of fact, Armour's had repeatedly protested against this misuse of their name and were to no small extent responsible for putting the fraud out of business.

medicinal virtue could reach all of these various causes and relieve and cure the conditions arising therefrom; and that the respondent, unskilled in the science and practice of medicine, cannot determine the condition from which the patron may be suffering or its superinducing cause, and cannot unless by accident furnish a remedy that will give relief and effect a cure.

LEACH AN OLD OFFENDER

"Fred A. Leach, the promoter of this scheme, has been in the mail-order business from 15 to 20 years. The evidence shows that he was manager of the Distributors Guarantee Association, against which a fraud order was issued May 8, 1908; that he sold vacuum developers for the enlargement of the male organ under the name of the Vacuum System and David Kuno, Chicago, Illinois; that he also operated under the name of the Ausin System and E. D. Ausin, Chicago, handling vacuum developers, and that in 1912 and 1913 he sold vacuum developers under the name of Martin W. Wade and Wade Manufacturing Company, Chicago, Illinois.

"The respondent requests that he be allowed to continue the business in question using revised literature, and has indicated the revision intended by striking out certain parts of the literature now in use. Since the testimony shows that the preparation is of practically no value in the treatment of the diseases and conditions for which it is recommended, this request must be denied.

"The postmaster at Chicago, Illinois, reports that on an average 15 pieces of mail are daily received at his office addressed to this concern.

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretences, representations and promises, and therefore recommend that a fraud order be issued against the Packers Product Company, at San Diego Building and 311 River Street, Chicago, Illinois."

A fraud order was issued April 4, 1918.

Correspondence

BARBOUR'S LINEN FLAX THREAD AS A SUBSTITUTE FOR PAGENSTECHER THREAD

To the Editor:—As Pagenstecher thread, used by many surgeons in gastric and intestinal work, has not been imported for many months, the supply has become practically exhausted. It may be of interest, therefore, for those who have not found a satisfactory substitute, to know that Barbour's linen flax thread is stronger, smoother and a much better product than Pagenstecher linen. This material can be obtained in almost any size, at 18 cents per spool of 200 yards, as compared with 20 cents per skein of 50 yards for Pagenstecher thread (less than one quarter the price). No. 60 or 70 is a satisfactory size for intestinal work. The war has demonstrated that with little inconvenience we can dispense with practically everything we formerly used bearing the label, "Made in Germany," and linen thread for surgical work is no exception. I do not know where Barbour's thread is made, but believe it comes from Ireland. I do know, however, that it can be obtained in any department store.

STEPHEN E. TRACY, M.D., Philadelphia.

OIL INUNCTION IN PREVENTION OF PLAGUE: A SUGGESTION OF A CENTURY AGO

To the Editor:—Anent the article by Dr. George Homan in THE JOURNAL, May 11, 1918, on "Protection Against Lice," a quotation from an old book on "Plague and Yellow Fever" in my possession may be of interest. The title page of this book has been lost so I cannot give either the name of the author or the date of its publication; but from references and quotations it was probably printed about the year 1800 and it has the long f-like letter s. Under the head of the treatment of plague, on page 341, the author says:

But of late a discovery has been made of a surprising power in heated oil of removing this disease, insomuch that, if we can believe what has been published of it, we must suppose it to be little less than a specific. So great indeed has been the confidence put in this method that, by order of the Academy of Sciences of Lisbon, it has been translated into Arabic, French and Portuguese.

Then follows a long extract from an Edinburgh medical journal, the *Annals of Medicine* for 1797, page 373, saying: "The method was first proposed by George Baldwin, Esq., agent of his Britannic Majesty, consol-general at Alexandria." Then follows a page of directions how to use oil by inunction in treating plague, and on page 343 is this statement:

There is no instance of the person rubbing a patient having taken the infection. He should previously anoint himself all over with oil, and must avoid receiving the infected person's breath into his mouth

and nostrils. The precaution to be used in all circumstances is that of carefully anointing the body and living upon a light and easily digested food. Mr. Baldwin observes that among upwards of a million of people carried off by the plague in Upper and Lower Egypt in the space of four years, he could not discover a single oilman or dealer in oil.

Now that we know the rôle played by the bite of fleas and lice in causing plague, typhus and trench fever, reason would seem to justify the experimental use of oil by inunction in the prevention of these diseases.

S. W. Dickinson, M.D., Marion, Va.

CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—I beg to acknowledge the following contributions in money and instruments for the Belgian and French civilian doctors to aid them when they return to their devastated homes.

SUBSCRIPTIONS IN CASH

Dr. J. J. Edmonson, New York	$ 5.00
Dr. Clarence T. Faries, Narberth, Pa. (second, third and fourth monthly contributions)	30.00
Dr. Horace Gray, Camp Devens, Fitchburg, Mass.	5.00
Dr. William B. Reed, Rochester, N. Y.	10.00
Total	$50.00

INSTRUMENTS

Dr. John M. Ball, St. Joseph, Mo.; Dr. A. S. Doloff, Lewiston, Maine; Dr. J. Hall Allen, Philadelphia; Dr. A. F. Radzinski, Detroit; Dr. G. V. Janvier, Lansdowne, Pa.; Dr. DeWitt C. Rodenburst, Philadelphia, N. Y.; one package of instruments, name of donor unfortunately mislaid; Dr. W. W. Keen, Philadelphia.

Messrs. Harvey R. Pierce & Co. have very kindly taken charge of the instruments and packed them carefully for shipment.

W. W. Keen, M.D., Philadelphia.

SIMPLE METHOD OF MAKING CURVED NEEDLES

To the Editor:—Owing to the scarcity of round curved needles, Langston Brothers, jewelers of Hamlet, N. C., have been making curved needles for the Hamlet Hospital by taking ordinary needles and bending them over an alcohol flame. This can be done by catching each end of the needles with a pair of pliers and gradually bending the needles over an alcohol flame. It takes about twenty seconds to make a curved needle out of a straight one.

W. D. James, M.D., Hamlet, N. C.
Surgeon in Charge, Hamlet Hospital.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INSURANCE AND COMPENSATION

To the Editor:—May I ask you to describe the features of the insurance bill as it applies to medical men in active service? The points on which I should like information are the following: amount that must be carried; amount that may be carried; the rate—say at the age of 36—per thousand dollars. Does insurance remain in force after military service ceases; if so, how long? Does insurance entirely replace any other "pension" allowances to dependents in case of death? What provision is made for payment of "pension" in case of permanent or total disability incurred in line of duty? Please do not publish my name. R. N. C., Cleveland.

To the Editor:—Will you please answer the following questions relative to the insurance and compensation law? Does Article II, relating to allotments and family allowances for enlisted men, apply to officers of the Medical Reserve? What is the cost of a $10,000 policy at the age of 45? Please omit my name. E. L. S., Montana.

To the Editor:—Can a medical officer resign from the service after taking the oath? When does his pay begin? When does it stop? Will those in Europe be returned home or be discharged over there to make their way home the best way they can? Does the government give any form of insurance that could be collected in bulk so that the wife would have enough to do something with, or is it all on the monthly payment plan that would keep her practically a dependent pauper—a sum that no family could live on and have money to do anything with? Does an officer's family have any other allowance than his salary and commutation as do the privates? Will there be any insurance or pensions for officers' disabilities?

F. R. DeHoney, M.D., Fredericktown, Mo.

Answer.—Medical officers in active service may carry government insurance, but are not required to do so. They are allowed to carry from $1,000 to $10,000, the monthly rate on $1,000 varying as shown in the accompanying table:

Years.	Monthly Premium	Years.	Monthly Premium
25	$0.66	41	$ .82
26	.67	42	.84
27	.67	43	.87
28	.68	44	.89
29	.69	45	.92
30	.69	46	.95
31	.70	47	.99
32	.71	48	1.03
33	.72	49	1.09
34	.73	50	1.14
35	.74	51	1.20
36	.75	52	1.27
37	.76	53	1.35
38	.77	54	1.44
39	.79	55	1.53
40	.81		

In case of total or permanent disability the insured receives $5.75 per month per thousand dollars of insurance; this is continued as long as the insured lives or as long as disability continues. In case of death the beneficiary will receive $5.75 per month for 240 months for each thousand dollars of insurance less any payments made to the insured for total and permanent disability. The benefits are not paid in a lump sum. After the war the insurance is convertible, within five years, to any of the standard types of insurance, such as life, twenty payment life, or endowment. The premiums increase annually during the war as the age increases until the insured changes to one of the permanent forms, when the premium will depend on the plan then chosen. The permanent insurance after the war will be government insurance. During the war it will have no cash value or loan value, but the permanent insurance after the war will have such value. The insurance must be applied for within 120 days after entrance into active service.

In addition to the government insurance there is compensation payable to officers injured or disabled when on active duty. This is payable for death or disability resulting from personal injury suffered or disease contracted in line of duty, unless caused by the person's own wilful misconduct, the sum varying from $30 to more than $100 monthly, according to the number of dependents.

DICHLORAMIN-T

To the Editor:—In The Journal, April 27, 1918, p. 1212, appeared an article entitled "Dakin's Dichloramin-T Solution for Ocular Infections." 1. Please inform me as to where I can obtain this preparation. I have been using the Carrel-Dakin solution, but, as stated in the article, it is too irritating, and I should like to try this preparation. 2. Please inform me as to the method of preparation, and what oil it is put in. 3. What is the meaning of the "T."

D. M. Randel, Muskogee, Okla.

Answer.—Dichloramin-T may be obtained from the Abbott Laboratories, Chicago, the Calco Chemical Company, Bound Brook, N. J., and the Monsanto Chemical Company, St. Louis (see New and Nonofficial Remedies, 1918, p. 159 and the N. N. R. department of The Journal, April 6, 1918, p. 999).

2. For use, dichloramin-T is dissolved in chlorinated eucalyptol, and this solution is diluted with chlorinated paraffin (see New and Nonofficial Remedies, 1918, p. 80), or the dichloramin-T may be dissolved in chlorcosane (see the N. N. R. department of The Journal, Feb. 16, 1918, p. 459, and May 18, 1918, p. 1459).

3. Dichloramin-T is the parasulphonedichloramid of toluene; the "T," for "toluene," distinguishes it from similar compounds that have been or may be made from benzene, xylene, etc.

SANATORIUMS THAT CARE FOR PATIENTS WITH TICS

To the Editor:—Please give me the names and addresses of sanatoriums that have had particular success in caring for patients with spasmodic functional tics. X. Y. Z.

Answer.—The Journal will be glad to hear of institutions, preferably in the West, that are fitted to care for cases of this character.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, State Capital, Montgomery.

ARIZONA: Phoenix, July 2. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

CALIFORNIA: San Francisco, June 25. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, July 2. Sec., Dr. D. A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 9-10. Sec. Regular Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 728 State St., Bridgeport; Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, June 18-20. Sec., Dr. H. W. Briggs, Wilmington, Del.

DISTRICT OF COLUMBIA: Washington, July 9-11. Sec., Dr. E. P. Copeland, The Rockingham, Washington.

FLORIDA: (E): Jacksonville, June 10-11. Sec., Dr. G. A. Munch, Tampa.

FLORIDA (Regular): Jacksonville, June 17-18. Sec., Dr. W. M. Rowlett, 812 Citizens Bk. Bldg., Tampa.

INDIANA: Indianapolis, June 13-15. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

KANSAS: Topeka, June 18-19. Sec., Dr. H. A. Dykes, Lebanon.

MAINE: Augusta, July 2-3. Sec., Dr. Frank N. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, June 18-22. Sec., Dr. J. McP. Scott, Hagerstown.

MICHIGAN: Ann Arbor, June 11-13. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSOURI: St. Louis, June 17-19. Sec., Dr. George H. Jones, State House, Jefferson City.

NEW HAMPSHIRE: Concord, June 24-25. Sec., Dr. W. T. Crosby, Manchester.

JERSEY: Trenton, June 18-19. Sec., Dr. Alex. MacAlister, Trenton.

NORTH CAROLINA: Raleigh, June 24-28. Sec., Dr. H. A. Royster, 423 Fayetteville St., Raleigh.

NORTH DAKOTA: Grand Forks, July 2. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 9-10. Sec., Dr. J. J. Williams, Weatherford, Okla.

OREGON: Portland, July 2. Sec., Dr. Herbert S. Nichols, 802 Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 9-13. Sec., Dr. N. C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, July 11. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, June 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Deadwood, July 9. Sec., Dr. P. B. Jenkins, Waubay.

TENNESSEE: Knoxville, Memphis and Nashville, June 14-15. Sec., Dr. A. B. DeLoach, Exchange Bldg., Memphis.

TEXAS: Austin, June 18-20. Sec., Dr. M. F. Bettencourt, Mart.

UTAH: Salt Lake City, July 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, June 10-12. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 18-21. Sec., Dr. J. W. Preston, Roanoke.

WASHINGTON: Tacoma, July 2. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bldg., Spokane.

WEST VIRGINIA: Wheeling, July 9. Health Com., Dr. S. L. Jepson, Masonic Bldg., Charleston.

WISCONSIN: Milwaukee, June 25-27. Sec., Dr. J. M. Dodd, Ashland.

Connecticut Homeopathic Report

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports that 2 candidates have been licensed through reciprocity since Jan. 1, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Boston University		(1909)	Minnesota
New York Homeopathic Medical College		(1917)	New York

Maine March Examination

Dr. Frank W. Searle, secretary of the Maine Board of Registration in Medicine, reports the written examination held at Portland, March 12-13, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 19 candidates examined, 17 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bowdoin Medical School	(1918) 85, 85, 86, 86, 87, 88, 88, 89, 89, 89, 89, 90, 90, 91, 94.		
Harvard University		(1918)	87
McGill University		(1896)	85
	FAILED		
Chicago College of Medicine and Surgery		(1908)	*
Harvard University		(1918)	*

* No grade given.

Medicolegal

Removing Superfluous Hair with Electric Needle Is Practicing Medicine

(Engel v. Gerstenfeld (N. Y.), 158 N. Y. Supp. 434)

The Supreme Court of New York, Appellate Term, Second Department, reverses a judgment obtained by the plaintiff for a balance claimed to be due for the removal with the electric needle of superfluous hair from the face of the defendant's niece, a Miss Abrams, because the plaintiff, not being a licensed and registered physician, in undertaking to treat Miss Abrams for the growth of hair on her face, violated the provision of the public health law regulating the practice of medicine. Justice Benedict holds that, as the plaintiff committed a misdemeanor in undertaking to treat the "deformity" or "physical condition" of the skin of Miss Abrams, the plaintiff was not entitled to recover in this action. Justice Clark concurs in the result, on the ground that the plaintiff practiced medicine, in that, following the definition of the statute, she held herself out as being able to diagnose, treat, and operate for a certain physical condition, and undertook to diagnose, treat, and operate for such physical condition. Justice Callaghan dissents.

Justice Benedict says the "practice of medicine" is defined in the statute as follows:

> A person practices medicine within the meaning of this article, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition.

The growth of hair on Miss Abram's face when she went to the plaintiff was a "deformity" or a "physical condition," of which she, or the defendant, desired the aid of the plaintiff in the treatment and cure; and the plaintiff clearly held herself out to them as being able to treat it successfully, and did undertake to treat it with an instrument known as an electric needle. The statute plainly means that a person holds himself out as being able and willing to diagnose or treat any human disease or "deformity" or "physical condition" when he represents or states to a patient that he possesses the skill or ability requisite for the case. It is not essential that the "holding out" should be by way of public announcement. If there be a "holding out" of oneself as willing to undertake the treatment and able to administer it, then it follows that this constitutes the practice of medicine within the terms of the statute. Nor can it be said that the removal of hair from the face of a woman by the use of an electric needle does not properly come within the category of the practice of medicine any more than the removal of hair from the face of a man by the use of a razor would. Bouvier's Law Dictionary, speaking of surgery, says, "The practice of surgery is limited to manual operations usually performed by surgical instruments or appliances." The use of an electric needle would obviously come within this definition.

The definition of the term "practice of medicine" contained in the statute may be thought by some persons to be highly artificial. It includes, and was designed to include, many things not popularly considered as medical practice. But the wisdom of the law, if it be constitutional, is a matter for the consideration of the legislature and not of the courts. It may well be argued that four years of medical study, including a thorough knowledge of anatomy, materia medica, hygiene, etc., in all their branches, are not requisite to equip a person properly to remove superfluous hair alone. Yet it can hardly be contended that persons engaging in that occupation should be subject to some sort of regulation to insure proper skill and sanitation, such at least as the regulations affecting the practice of chiropody. The legislature has seen fit to set a much higher standard, and until the statute herein discussed is amended or abrogated, the courts have no discretion but to enforce it.

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Alpha Omega Alpha Society, Chicago, June 10.
American Association of Anesthetists, Chicago, June 10-11.
Am. Assn. of Industrial Physicians and Surgeons, Chicago, June 10.
American Ophthalmological Society, New London, Conn., July 9-10.
American Proctologic Society, Chicago, June 10-11.
American Surgical Association, Cincinnati, June 6-8.
American Therapeutic Society, Richmond, Va., June 7-8.
Idaho State Medical Association, Seattle, July 17-19.
Massachusetts Medical Society, Boston, June 18-19.
Montana Medical Association, Butte, July 10-11.
Nat. Assn. for the Study and Prev. of Tuberculosis, Boston, June 6-8.
New Jersey Medical Society, Spring Lake, June 25-26.
North Dakota State Medical Association, Fargo, June 19-20.
Oregon State Medical Association, Seattle, July 17-19.
Southern Minnesota Medical Association, Winona, Minn., June 24-25.
Washington State Medical Association, Seattle, July 17-19.
Western Roentgen Society, Colorado Springs, June 27-28.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Third Annual Meeting, Held at Atlantic City, N. J., May 7-8, 1918

Dr. F. H. Williams, Boston, in the Chair

Instructions in Treatment

Dr. F. H. Williams, Boston: The young practitioner has many difficulties in adapting the details of pharmacology and therapeutics to practice. Students should be taught by men with long clinical practice and in that way learn to bridge the gap between materia medica and therapeutics, on the one hand, and the practice of medicine on the other. More opportunities for bedside instruction should be offered. The student should be taught when to give powerful remedies and when not. The man who brings sleep to the patient without resorting to hypnotics, or alleviates pain without prescribing morphin, who, in other words, accomplishes results by simple means, is learning to be master of his art.

Intravenous Use of Arsphenamin in Syphilis of the Nervous System

Dr. Bernard Sachs, New York: Four hundred patients were treated intravenously with the Philadelphia preparation of arsphenamin, which has proved entirely satisfactory. I am convinced that much good will be accomplished by the intravenous treatment, which is safe in the hands of the majority of physicians. All biologic tests must be used as corroborative evidence, and clinical evidence must not be disregarded. The lack of serologic evidence does not always disprove syphilis, nor is there a parallel between clinical symptoms and serologic findings, as remissions are often observed without serologic change, and serologic improvement is not always accompanied by clinical betterment. It is only in types with vascular lesions that the clinical findings and serologic tests progress *pari passu*. In general paresis and tabes, the chief lesions are deep in the brain and cord, far removed from the spinal fluid, and only to be reached by the blood stream. In the meningomyelitic type of involvement it is impossible for the curative substances to remain in the fluid long enough to do any good. I do not hold the doctrine of the impermeability of the choroid plexus. The pressure in the cerebral capillaries being higher than in the fluid, a metallic substance like arsphenamin is rapidly absorbed into the venous system. Why, therefore, should not the venous system be used at once? Intraspinal medication is theoretically and essentially unsound. It is fatal to the syphilitic organism, but frequently also to the patient. Early and intensive treatment is necessary, a dose being given every other day for from four to six weeks, followed by a period of complete rest. Forty or fifty injections may be required within a year. It would be impossible to introduce toxic substances so frequently into the canal. No claim can be made for the cure of tabes dorsalis or general paresis by the intraspinal method; the most that can be said is that remissions may be longer. It is urged that treatment be begun as early as possible and continued for years after the initial lesion, and that the patient be kept under medical control for as long as necessary. The hope of the future lies in the discovery of a substance less toxic than arsphenamin with which a more intensive treatment can be undertaken.

DISCUSSION

Dr. S. J. Meltzer, New York: In regard to the permeability or impermeability of the choroid plexus we have no exact knowledge. Benedict found arsphenamin (salvarsan) in the spinal fluid, but no doubt not in such quantities as if injected intraspinally. Swift's work was conservative, and he never overemphasized his claim. He used not merely arsphenamin, but arsphenamized serum. Is there any objection to giving intraspinal treatment at the same time as intravenous, provided it does no harm? With meningitis both intravenous and intraspinal injections should be used.

Dr. William H. Park, New York: In regard to tetanus antitoxin, one can absolutely show that the intraspinal injection will protect and cure, while the intravenous alone will not. The two are given simultaneously.

Dr. Bernard Sachs, New York: In reply to Dr. Meltzer as to why I do not advocate the combination of the intraspinal and the intravenous methods, I have distinct experience of the far more dangerous character of the intraspinal medication. I have seen immediate paralyses ensue, and cases in which rectal and vesical control have become markedly impaired. With the use of the intravenous treatment I have kept a patient over ten years in a very comfortable condition.

Relation of the Chemical Structure of Opium Alkaloids to Their Action on Smooth Muscle and on the Pharmacologic and Therapeutic Properties of Some Benzyl Esters

Dr. D. I. Macht, Baltimore: I have made an intensive study of the alkaloids of opium in connection with morphin. A marked difference exists in the alkaloids of the two products. The alkaloids of opium act on the central nervous system, on peripheral structures, and on smooth muscle. The effect of morphin is increased tonicity, that of papaverin, relaxed tonicity and inhibition of contractions. Thus the latter preparations (papaverin alkaloids) can be used for expulsion of renal calculi, by relaxation of the ureteral muscle. Search was made for nontoxic products, and benzyl benzoate and benzyl acetate, very slightly toxic products, were found, giving the effects of papaverin. Metabolic studies showed that benzyl acetate was excreted by the kidneys as hippuric acid. This is nontoxic and can be administered by mouth. It has been tried clinically, but the disagreeable odor and digestive disturbance after its use contraindicate its use. Benzyl benzoate was then tried. It was found to be of use in cases of excessive peristalsis, in diarrhea and in dysentery. A 20 per cent. solution in alcohol was used. Other indications are in pylorospasm, intestinal colic, spastic constipation, biliary colic, ureteral calculi, vesical spasm, spasm of seminal vesicles, uterine colic, arterial spasm, high blood pressure and lastly bronchial spasm with true asthma, in which remarkable relief was afforded. Benefit occurs by relaxation of spasm.

Use of Benzyl Alcohol as a Local Anesthetic

Dr. D. I. Macht, Baltimore: In testing the taste of the drug, it was found that a drop on the tongue produced numbness, and experiments proved that this agent produced anesthesia of the sensory nerve endings. Benzyl alcohol possesses only slight toxicity. It is found in balsam of Peru and Tolu and is known as phenmethyl-O. The boiling point is very high. It is soluble up to 14 per cent. in water, at room temperature. All the solutions used in the clinic were from 0.5 to 4 per cent. Other effects are sensory nerve paralysis; corneal anesthesia; blocking of nerve fibers, first sensory, then motor; effect on blood pressure (the heart not being affected at all), and a slight sedative effect on the central nervous system. The toxicity as compared with cocain shows

that 20 c.c. injected into an animal gives no effect, whereas 20 mg. of cocain injected kills an animal. It has been tried out in the clinic with marked success. The anesthesia was found to be fully that of cocain. A bullet was extracted without pain; ingrowing toenails were excised; complete excision of hemorrhoids and excision of rectal fissure were painlessly performed.

DISCUSSION

DR. S. J. MELTZER, New York: Has Dr. Macht studied only smooth muscle or has he also experimented with papaverin on striated muscle? What are the effects on the central nervous system? Does the papaverin group increase the inhibitory side of the nerve effect, or are the phenomena of the opposite nerves reduced?

DR. T. R. BROWN, Baltimore: In cases of increased irritability of the gastro-intestinal tract, associated with diarrhea and mucous colitis, the symptoms are very greatly relieved by the benzyl esters.

DR. S. SOLIS COHEN, Philadelphia: I have found benzyl benzoate of value in the treatment of various forms of asthma with dyspnea and in arteriosclerosis with excessively high blood pressure. It is of great use in a particularly irritating cough, known in Philadelphia as "Hog Island Whoop." In cases in which one does not care to use morphin, benzyl benzoate is a distinct palliative.

DR. ALFRED H. HESS, New York: I have used papaverin in pylorospasm with good result.

DR. D. I. MACHT, Baltimore: I believe that the papaverin group exerts its action peripherally. This is the therapeutic action of all papaveraceae. Benzyl esters act on the central nervous system. The peripheral effect on smooth muscle predominates, however. In regard to the toxicity of the benzyl esters, the herbivorous animals apparently can stand much larger doses and can metabolize them better than carnivorous animals.

Acute Pancreatitis in Typhoid

DR. THOMAS MCCRAE, Philadelphia: The case ran an ordinary course, the temperature being normal on the twenty-fourth day. On the twenty-sixth day the patient complained of pain in the upper right quadrant, there was jaundice, and the leukocytes numbered 20,000. Two or three days later the pain subsided and the leukocytes numbered 10,000. Eleven days later there was a definite mass in the region of the gallbladder, somewhat tender, and a diagnosis of cholecystitis was made. The next day the pain was very severe and bloody stools were passed, blood was present in the urine, and large amounts of blood were vomited. The leukocytes numbered 26,000. The symptoms subsided for a time when the pain again increased. On the fifty-fourth day of the illness an operation was performed. It was found that the gallbladder, duodenum, stomach and bile ducts were normal. The pancreas was swollen and inflamed. The abdomen was closed and the patient made a good recovery, and in three weeks the mass disappeared. On the eighty-second day he was discharged perfectly well. Points to be observed in this case were that there was very little fever, never complete stoppage of bile, and the stools showed no evidence of pancreatic disease.

DISCUSSION

DR. EMANUEL LIBMAN, New York: I have seen this picture in cases in which I suspected a mild form of pancreatitis. A certain form of pancreatitis occurs in acute infectious diseases and in suppurative conditions after abdominal operations. The diagnosis of acute pancreatitis is not so difficult as it is supposed to be. In these cases there is tenderness of the left lumbar region, marked even in patients not sensitive to pain. This question of the relative sensitiveness of the patient to pain is important. Pain is much more apparent in some patients than in others. In acute pancreatitis the pain on the left side can always be elicited, and this is found in no other condition.

DR. THOMAS MCCRAE, Philadelphia: There was no tenderness in the left lumbar region in this case. A careful examination was made because when the hematuria appeared it was thought that there was a condition in the kidney producing this symptom.

Clinical Manifestations of Tropical Sprue

DR. E. J. WOOD, Wilmington, N. C.: There has been a great increase in the number of cases in North Carolina, South Carolina and Georgia. I have seen cases of tropical sprue from the East and from Porto Rico, as well as Southern cases. There is only one type in all cases. Sprue is often confused with pallagra. It is no doubt true that many cases of pellagra are complicated by sprue. Sprue needs special attention at this time because it has appeared near many of the Southern cantonments. The symptoms appeared first in the tongue, in the form of small, painful erosions. In the diarrhea of sprue the feces are tremendously acid in reaction, are yeasty, and are passed during the early morning hours. They show tremendous loss of fat, as much as 59 per cent. The nitrogen loss is 15 per cent. Functional deficiency of the pancreas is evident in most cases, but not all. Anemia in sprue is an essential feature. The absence of anemia in pellagra is a distinguishing feature. In sprue the anemia appears similar to pernicious anemia. Shrinkage of the liver is seen in both conditions. The stomach content changes are fairly similar in both diseases and show a decrease in hydrochloric acid. The beef treatment of Cantley has been found the best means of therapeusis.

DISCUSSION

COL. WILLIAM H. WELCH, M. R. C., Baltimore: I have found buccal lesions and gastro-intestinal lesions which might be referable to sprue. I should like to know to what extent pellagra is complicated by sprue. Goldberger's work would seem to show that this is one of the most difficult and perplexing questions. Not a single case of pellagra has been found to develop when the diet has been properly supplemented.

DR. ALEXANDER MCPHEDRAN, Toronto: A few years ago I saw a woman who returned from India much affected. Her condition was grave, with extreme anemia, but there was no material loss of weight. Diarrhea was marked. The tongue had a rather glazed, smooth appearance. She had recurrent attacks of vesicular stomatitis. No treatment produced any effect until she tried the strawberry diet, three or four pounds a day, and she improved on that and for two summers was greatly improved. Two years later she became pregnant and had a marked mitral stenosis. It was believed best to do cesarean section three weeks before term. The child was viable. She did well for a few days, but then developed sepsis and died.

DR. S. SOLIS COHEN, Philadelphia: A teacher returned from Porto Rico with an undoubted case of sprue. She showed marked nervous and mental symptoms. British writers advocated treatment by old santonin. This patient received this treatment and recovery followed. Is that the general experience?

DR. T. R. BROWN, Baltimore: I have seen two cases from Porto Rico. The stomach contents showed complete achylia. Under treatment the stomach contents returned to normal as regards hydrochloric acid.

DR. E. J. WOOD, Wilmington, N. C.: The point to decide is, When does sprue begin to complicate pellagra? The pellagra tongue has a different appearance, being a much deeper red, this being accompanied with profuse and painful salivation. In sprue the tongue is furred and dry because of the absence of salivation. The intake and the output of nitrogen in pellagra are normal. Pellagra is a seasonal disease running from May to August. In sprue the diarrhea, instead of ending, continues. Anemia is not associated with pellagra, but in sprue it is essential for diagnosis. In answer to Dr. Libman, there is an absolute absence of hydrochloric acid in sprue. In regard to the nervous disturbances mentioned by Dr. Cohen, these disturbances are marked in pellagra and perhaps the case mentioned was really pellagra and not sprue. The strawberry diet has not been found to be of any service. Santonin and emetin have been discarded as worthless. No treatment except dietetic control and rest for a prolonged period has been found of any avail.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

May, 1918, 155, No. 5

1 *Surgical Shock and Some Related Problems. J. E. Sweet, Philadelphia.—p. 625.
2 Melanosarcoma of Rectum; Report of Case. J. W. Churchman, New Haven, Conn.—p. 639.
3 *Prognosis of Gallbladder Infections. J. H. Gibbon, Philadelphia. —p. 644.
4 Nervous Manifestations of Syphilis of Eye. J. Collins, New York. —p. 649.
5 *Cardiac Syphilis. W. C. Moore, Washington, D. C.—p. 660.
6 Sulphoconjugation as Test of Liver Function. M. Kahn, New York.—p. 668.
7 Some Clinical and Experimental Observations on Gastric Acidity: Use of Gas Chain Method. G. L. McWhorter, Chicago.—p. 672.
8 Prognostic Value of Psychometric Tests as Compared with Clinical Signs in Epilepsy. L. P. Clark and A. Milean, New York. —p. 685.
9 Gummous Syphilis of Thyroid. F. E. Senear, Ann Arbor, Mich. —p. 691.
10 Differential Diagnosis of Affections of Right Upper Quadrant. C. G. Heyd, New York.—p. 703.
11 Roentgen Rays as Aid in Diagnosis of Ulcus Ventriculi. J. W. Held and M. H. Gross, New York.—p. 713.

1. **Surgical Shock and Some Related Problems.**—Sweet defines shock as a condition marked by a gradual progressive fall of blood pressure with no obvious cause, such as hemorrhage, intracranial pressure or heart failure. He believes that it is due to a paresis or paralysis of the musculature of the arterioles. The only way in which Sweet has been able to experimentally produce anything which looks like shock to him is by the removal of the suprarenals. After the removal of the suprarenals the content of the intestinal tract contains a poison identical with, or at least similar to, the poison found in high obstruction, which suggests a possible relation between high obstruction and the suprarenals. Speaking of blood transfusion Sweet says: Let us think for a moment of what the blood is and does and let us begin by getting out of our heads the idea that the blood is that vital life-giving fluid which can be cleaned by a spring tonic or which can become diseased with any result, from pimples on the face to cancer of the uterus. The blood is just about as vital as a bucket of water and just as full of life. It contains and carries to the tissues just what and only what the tissues put into it. It is a purely passive, inert, lifeless stream, carrying canal boats loaded with goods, the red cells, themselves again passive. The red cells are alive, but only mildly so, and no more so than certain chemical agents, sponge platinum for example. The white cells are alive in a more real sense, but they are not in the blood stream because the blood stream wants them; they were merely playing on the bank and fell in. Sweet says he has the highest respect for it as a common carrier, no respect at all for it as an active agent, endowed with a free will; and because he feels as he does toward the blood, he fails to see that a transfusion can ever be much more than a symptomatic treatment.

3. **Prognosis of Gallbladder Infections.**—Gibbon believes that the mortality in gallbladder infections depends very largely on whether or not a cholangeitis is present, and that a persistent jaundice accompanied by general symptoms of sepsis is of grave import and calls for prompt drainage through the gallbladder or common duct, or both; that a patient having undoubted symptoms of gallbladder infection should not be allowed to postpone operation until an acute exacerbation of the infection occurs; that even far-advanced and neglected cases of infection of the gallbladder alone give good results following operation; that jaundice due to stone in the common duct in the absence of symptoms of sepsis is not necessarily a grave symptom if prompt operation is done; that the high mortality following operations occurs in the cases of long-standing gallbladder symptoms with acute exacerbation of the infection and in cases of malignancy of the gallbladder and pancreas; that the use of horse serum has practically eliminated the danger of hemorrhage due to long-standing jaundice, and that the recurrence of gallstones after thorough operation is extremely rare.

5. **Cardiac Syphilis.**—Moore insists that cardiac complications during syphilis occur much more frequently than has been recognized generally heretofore. The cardiac lesions occur earlier in the disease than has been thought, even in the early secondary stage. Congenital syphilis of the heart is a cause of sudden death in early life, this condition being unsuspected clinically, as a rule. The nature of the process in the heart is distinct and may be recognized microscopically, and the spirochetes may be found in the lesion; it is most frequently a myocarditis. Uncomplicated aortic insufficiency is of syphilitic origin in the majority of instances. The symptoms are not definite but extremely suggestive; the diagnosis depends mainly on the signs of some cardiac disorder, with a positive Wassermann, and a response to antisyphilitic treatment. The prognosis is good in the early stages and varies directly with the stage of the disease and the extent of the changes produced. Treatment should be mainly antisyphilitic intensive. Cardiac treatment is required rarely except in cases with decompensation. Once instituted treatment should be carried through persistently and uninterruptedly.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

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12 Anatomic Factors Concerned in Production of Deformed Pelves. J. W. Williams, Baltimore.—p. 714.
13 *New Operation for Prolapse of Uterus. E. Ries, Chicago.—p. 758.
14 Development and Perfection of "Interposition Operation" for Prolapse of Uterus and Bladder. I. S. Stone, Washington, D. C.—p. 773.
15 Case Illustrating Value of Kidney Drainage with Ureteral Catheter, of Pelvic Lavage and Intra-Ureteral Manipulation. H. G. Bugbee, New York.—p. 781.
16 Delivery by Abdominal Section. E. P. Davis, Philadelphia.—p. 786.
17 Painless Childbirth. W. F. B. Wakefield, San Francisco.—p. 792.
18 *Analysis of Blood in Eclampsia and Allied Intoxications. J. M. Slemons, New Haven, Conn.—p. 797.
19 Surgical Conditions Complicating Intra-Uterine Pregnancy. R. D. Mussey, Rochester, Minn.—p. 806.
20 Acidosis in Pregnancy (with Special Reference to Carbon Dioxid Method of Van Slyke). L. A. Emge, San Francisco.—p. 813.
21 Gallbladder Disease Complicating Pregnancy. A. W. White, Brooklyn.—p. 821.

13. **Operation for Prolapse of Uterus.**—All or any of the steps of Ries' operation are used according to the findings. Assuming a case of a multipara who does not insist on further offspring, the vagina is disinfected with compound solution of cresol, and the external skin with iodin or acetone alcohol. The bladder is catheterized. The cervix is pulled down, is disinfected, and volsella are placed just below the external meatus, one far out on each side of the vagina. A piece of vagina the size of which depends on the amount of redundant vaginal tissue is dissected off. The edges of the vagina are then lifted up and dissected farther away from the bladder so that the lateral attachments of the bladder are freed. Then the ligamenta pubovesicalia, where distinct, are separated from the bladder a short distance and the bladder is pushed away from the uterus clear up to the peritoneum, but the peritoneum is not opened. Now the first sutures unite the ligamenta pubovesicalia below the bladder where they are well pronounced. The next line of continuous sutures grasps the vaginal wall and where the urethra is not firmly fixed, the urethra. At the end of the urethra this suture is tied. From there on a continuous suture unites vaginal wall and fastens it at the same time to the cervix so that a deep anterior fornix of the vagina is created. Coming close to the lower end of the cervix the line of incision is drawn into a transverse line and the suture made across the cervix. This finishes the work on cervix, urethra and anterior vaginal wall. The bladder has not been sutured so far at all and it lies temporarily above the anterior fornix of the vagina and any oozing from it will accumulate in this space between the peritoneum above and the vagina below.

The operation for the rectocele is now begun with a Hegar triangular denudation, the rectum is separated from the vagina so far as necessary and by blunt dissection of the levator muscle is laid bare on both sides. The attachment of the pubococcygeus behind the anus causes the posterior circumference of the arnus to move if the freed levator is pulled on. Three or four sutures unite the edges of the levator. Then a point as much below the apex of the triangle as necessary in each case is pulled up and a suture made which distorts the upper end of the triangle into a two-pronged suture line, the two prongs lying in the posterior sulci of the vagina. The rest of the perineal plastic is done in the usual way. Skin sutures are made with celluloid linen, everything else with plain catgut. The perineum is covered with pertrolatum as the only dressing. The abdomen is entered and the uterus exposed. Sterilization Ries accomplished by excising the tube out of the uterine horn in wedge shape. The gap in the uterine horn is sutured over by a special suture or this suture is done together with the next step of the operation.

The edge of the peritoneum of the bladder is pulled as high up on the uterus as the tissue will allow, thereby taking the slack out of the posterior vesical wall and fastening the posterior bladder wall high up on the uterus. This peritoneum and bladder is sutured to the fundus of the uterus and the stitches which fasten it can be utilized to close the gap in the uterine horn if this has not been done previously. If the symphysis has been found bare, the anterior wall of the bladder is pulled up and stitched to the posterior aspect of the rectus muscles as high as the slack permits. Next the parietal peritoneum is sutured to the posterior surface of the uterus below the fundus so that the fundus is extruded from the peritoneal cavity, and the suture of the parietal peritoneum is completed. The rectus muscles or sometimes the fascia are sutured to the extruded fundus. The muscles and fascia are then united in the ordinary way and the skin sutured.

18. **Blood in Eclampsia.**—Analysis of the blood in cases of eclampsia and allied intoxications revealed a normal quantity of amino acids and a slight retention of nitrogenous waste products, as urea and uric acid. After convulsions there is an increase in the blood sugar. The total fat is approximately the same in cases of toxemia and of normal pregnancy. Usually the cholesterol is increased and the lecithin diminished in eclampsia. The carbon dioxid combining power of the plasma is reduced during normal pregnancy, indicating a mild acidosis, and the variations met with in the presence of autointoxications are insignificant. Slemons says that the results of blood analysis do not support the acidosis hypothesis nor the derangement of protein metabolism hypothesis of eclampsia and indicate that the cause of the disease must be sought elsewhere.

American Journal of Ophthalmology, Chicago

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22 Leprosy; Ophthalmologic Findings. A. M. Yudkin, New Haven, Conn.—p. 303.
23 Case of Traumatic Pulsating Exophthalmos. A. J. Bedell, Albany, N. Y.—p. 311.
24 Star Shaped Figure in Macula of Syphilitic Origin. H. C. Haden, Galveston, Texas.—p. 313.
25 Pathogenic B. Subtilis Isolated from Eye. E. A. Greenspon, Montreal, Canada.—p. 316.
26 Ophthalmic Examination of Drafted Men at Camp Jackson. B. Chance, Philadelphia.—p. 318.
27 Wassermann Findings in Ophthalmic Disease. N. M. Brinkerhoff, Philadelphia.—p. 322.
28 Association of Ocular and Nasal Accessory Sinus Disease. G. O. Ring, Philadelphia.—p. 324.
29 Two Cases of Atrophy of Iris. F. Allport and J. R. Smith, Chicago.—p. 336.
30 Blepharospasm Secondary to Pyorrhea Alveolaris. H. M. Thompson, Pueblo, Colo.—p. 338.
31 Hysteric Amblyopia. F. A. Morrison, Indianapolis.—p. 338.
32 Corneal Loupe. R. Von der Heydt, Chicago.—p. 339.

Boston Medical and Surgical Journal

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33 Traumatic Shock. W. T. Porter, Boston.—p. 657.
34 Anatomy and Physiology of Respiratory Tract. F. F. D. Reckord, Harrisburg, Pa.—p. 660.
35 Portable Respiration Apparatus for Clinical Use. F. G. Benedict, Boston.—p. 667.

Canadian Medical Association Journal, Toronto

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36 Pancreatic Cysts; Report of Cases. W. F. Hamilton, Montreal.—p. 385.
37 Cholecystectomy—Useful Technic. F. N. G. Starr and R. Graham, Toronto.—p. 391.
38 Handling and After-History of Heart Affections in Soldiers. J. C. Meakins.—p. 394.
39 Diagnosis of Disseminated Sclerosis. A. G. Morphy, Montreal.—p. 401.
40 Tuberculin, Its Nature and Action. R. C. Paterson, Saranac Lake, N. Y.—p. 409.
41 Cutaneous Manifestations of Syphilis. A. V. Greaves.—p. 417.
42 Teaching of Hygiene. A. H. Mackay.—p. 424.
43 *Ruptured Ectopic Pregnancy—Blood Transfusion and Pulmonary Embolism. R. V. B. Shier, Cookstown, Ont.—p. 427.

43. **Ruptured Ectopic Pregnancy—Blood Transfusion and Pulmonary Embolism.**—When first seen six hours after onset of symptoms Shier's patient presented the signs of abdominal hemorrhage. The history and patient's condition quickly led to a diagnosis of ruptured ectopic pregnancy. She was pulseless, her pupils dilated and altogether not at all encouraging. The abdomen was opened and found full of blood and clots. The ruptured tube was easily located, its pedicle clamped and tied off. Pituitary extract 1 c.c. was given. The abdomen was made reasonably free of blood and clots and the incision closed, drainage being provided by two rubber tubes passing down to the pelvis. The patient was returned to bed with the foot elevated. About two hours later, Shier transfused her from her husband, a healthy robust man. About 750 c.c. of blood was used. The sodium citrate method was followed. The usual signs of improvement after transfusion followed, and from then on the patient made an uninterrupted recovery until the morning of the twelfth day, when suddenly, while in conversation with the nurse, she was seized with a fainting spell and gasped for air. Collapse followed immediately, the pulse dropped to 70 and was very weak. She was cyanotic and suffering from dyspnea. She had no pain but her pulse was now 140. Shier suspected pulmonary embolism and gave stimulants and fresh air in abundance. In a few hours time the cyanosis lessened, but the pulse remained fast and the dyspnea increased. The respiratory rate reached 58 to 60 at times. The air hunger was extreme. Her condition remained much the same for thirty-two hours when death came through gradual cardiac failure.

Illinois Medical Journal, Chicago

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44 Reclamation of Wounded Soldier. H. N. MacKechnie, Chicago.—p. 245.
45 New Field Development of Use of Army Litter. E. D. Wise, Fort Oglethorpe, Ga.—p. 248.
46 Case of True Senile Prostate Associated with Multiple Sacculi of Bladder. G. F. Lydston, Chicago.—p. 250.
47 Treatment of Venereal Diseases Recommended for Army. W. A. Pusey, Chicago.—p. 251.
48 Mental Depression. C. F. Read, Chicago.—p. 253.
49 Ophthalmologic Cases. C. Loeb, Chicago.—p. 257.
50 Relation of Glands of Internal Secretion to Surgery. J. B. Haeberlin, Chicago.—p. 262.
51 Triple Wounds of Stomach from Single Intact Bullet. N. Kerr, Chicago.—p. 267.
52 Range of Physiologic Life of Tonsil. J. W. Smith, Bloomington.—p. 268.
53 Why Are Tonsils and Lymphatics of Nose and Throat Responsible for so Many Systemic Diseases? R. H. Good, Chicago.—p. 271.

Iowa State Medical Society Journal, Des Moines

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54 Problems of Stream Pollution in Iowa. L. Higgins, Des Moines.—p. 163.
55 Pathology of Pregnancy. P. Reed, Iowa City.—p. 168.
56 Indications and Use of Drugs in Obstetrics. H. W. Vinson, Ottumwa.—p. 171.
57 Obstetric Accidents as Cause of Gynecologic Conditions. W. C. Kasten, Fort Madison.—p. 175.
58 Management of Premature Labor and Obstetric Surgery Outside of Hospitals. C. W. Stephenson, Milton.—p. 177.
59 Embolism of Superior Mesenteric Artery; Report of Case. F. R. Sparks, Waverly.—p. 182.
60 Some Troublesome Fractures. W. H. Fox, Waucoma.—p. 186.

Kansas Medical Society Journal, Topeka

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61 Some Lessons of War. C. S. Huffman, Topeka.—p. 107.
62 Obstetric Clinic, Kansas City General Hospital. G. C. Mosher, Kansas City.—p. 110.

Journal of Experimental Medicine, Baltimore

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63 Study of Low Blood Pressures Associated with Anaphylactic and Peptone Shock and Experimental Fat Embolism, with Special Reference to Surgical Shock. J. P. Simonds, Chicago.—p. 539.

64 *Autohemagglutination Experimentally Induced by Repeated Withdrawal of Blood. O. H. Robertson and P. Rous, New York. —p. 563.

65 *Experiments Outlining Limitations of Operations on Abdominal Aorta. C. Goodman, New York.—p. 569.

66 Morphologic Characteristics and Nomenclature of Leptospira (Spirocheta) Icterohemorrhagiae (Inada and Ido). H. Noguchi, New York.—p. 575.

67 *Cultural Conditions of Leptospira (Spirochaeta) Icterohemorrhagiae. H. Noguchi, New York.—p. 593.

68 *Survival of Leptospira (Spirocheta) Icterohemorrhagiae in Nature. H. Noguchi, New York.—p. 609.

69 *Behavior of Hypochlorite and of Chloramin-T Solutions in Contact with Necrotic and Normal Tissues in Vivo. J. H. Austin and H. D. Taylor, New York.—p. 627.

70 *Toxicity of Certain Widely Used Antiseptics. H. D. Taylor and J. H. Austin, New York.—p. 635.

64. **Autohemagglutination Induced by Repeated Withdrawal of Blood.**—The influence of repeated bleedings on the normal isohemagglutinins was investigated by Robertson and Rous. They found that the repeated withdrawal of moderate quantities of blood does not lead to a development of new isoagglutinins in rabbits, or to noteworthy changes in normal ones already present. On the other hand, clumping of the animals' own cell in specimens of the whole blood is a frequent result. It is found in animals rendered anemic by the bleedings, not in those that rapidly repair their losses and remain in good condition. A similar clumping is sometimes to be seen in the blood of rabbits rendered anemic by malnutrition. The clumping is due to a true auto-agglutinin, which differs from the normal auto-agglutinin in its far greater strength, as also, at least in some instances, by a peculiar variation in its activity with changes of temperature. In the rabbits which developed iso-agglutinins after bleeding, the tendency of the cells to form rouleau was far less than the normal. It follows that rouleau formation is not essentially connected with auto-agglutination, as has been assumed in the past. The authors suggest that in the light of these findings a systematic search for autohemagglutinins in the blood of anemic patients would seem of interest.

65. **Operations on Abdominal Aorta.**—From the results of the five experiments presented by Goodman there seems to be no difficulty in correcting injuries of the abdominal aorta in dogs, with subsequent perfect restoration of the continuity of the vessel. The complete occlusion of the aorta for a period of thirty minutes is not necessarily followed by serious consequences. For lateral defects in the aorta, or for injuries not involving the entire circumference, a rectangular clamp may be applied for a prolonged period in order that the circulation should not be completely cut off. An operative field free from blood can thus be obtained while the circulation is maintained through the remaining lumen of the aorta. In the instances in which a portion of the aorta must be resected, an arterial segment taken from another animal can be safely utilized as a transplant. Smaller vessels can be adapted to the caliber of the aorta by the following procedure which was devised by Jeger and Helmuth Hosef. While the reestablishment of the continuity of the severed aorta by the circular suture is possible, the approximation of the severed ends during the suture entails such injury that thrombosis frequently occurs. Therefore, when the aorta is completely severed, the introduction of a transplanted segment is indicated. An arterial tube of increased caliber made of smaller vessels such as the carotid lends itself readily as a transplant to the severed aorta, with a reasonable assurance of reestablishing the continuity of this vessel. Defects in the aorta can be readily corrected by the use of fascial transplants with minimum danger of thrombosis.

67. **Cultural Conditions of Leptospira Icterohemorrhagiae.**—Noguchi claims that the presence of suitable animal or human serum is essential for the cultivation of *Leptospira icterohemorrhagiae*. A luxuriant growth takes place in a medium of Ringer's solution to which more than 10 per cent. of normal rabbit serum is added. The use of an undiluted serum offers no advantage over a diluted one, provided the latter contains at least 10 per cent. of serum. In the case of certain animal serums dilution seems to make them more suitable for cultivation purposes, owing perhaps to its reduction of their inherent alkalinity. The reaction of the medium is an important factor in the cultivation of the organism, which thrives most vigorously in a medium of which the reaction is slightly alkaline, not exceeding that of the serum. Three different media are described by Noguchi for the cultivation of freshly isolated strains. After prolonged cultivation on these mediums a strain may be readily cultivated in a serum diluted with Ringer's or isotonic salt solution.

68. **Survival of Leptospira Icterohemorrhagiae in Nature.**—The larvae and adults of the Culex mosquito, the larvae of the house fly and bluebottle fly, wood ticks (*Dermacentor andersoni*), and leeches failed to become carriers of the spirochetes when fed on infected guinea-pigs or their organs; they cannot play the part of an intermediary host of *Leptospira icterohemorrhagiae*.

69. **Hypochlorite and Chloramin-T Solution.**—Exact determinations of the rapidity of the fall in chlorin concentration on pathologic and on normal skin, under experimental conditions were made by Austin and Taylor because they might be of value to surgeons using Dakin's hypochlorite and chloramin-T solutions clinically. The left ears of three white rabbits of the same relative size and weight were exposed to the rays emitted by a Coolidge tube. The spark gap used measured 3 inches; the milliamperage was 110; the distance from the target to the ear was 6 inches; and the time of exposure was twenty minutes. Eight weeks later the roentgen rayed ears each exhibited a sharply demarcated gangrenous area over which there was considerable crusting of epithelium and secretions and in the lumen there was much thick pus. The ears of the affected rabbits were each suspended for twenty minutes in a beaker containing 400 c.c. of the solution to be tested.

The fall in chlorin concentration of Dakin's hypochlorite solution was more rapid in contact with necrotic than in contact with normal tissue. The fall in chlorin concentration of chloramin-T solution was very slight when applied to necrotic tissue and is negligible when applied to normal tissue. The action of the hypochlorite solution on tissue resulted in the separation of particles of necrotic tissue, hair, epithelial scales, coagulated serum, etc., and a gradual digestion of these substances, taking place over a period of at least seventeen hours. The fall in the chlorin concentration of hypochlorite solution was not complete until the particles were completely dissolved. Chloramin-T solution, 2 per cent., had no erosive effect comparable with that exhibited by the hypochlorite solution. Repeated exposure to the three solutions showed that the hypochlorite solution was superior in its cleansing ability on necrotic tissue. The hypochlorite solution was much more irritating to normal rabbit skin than chloramin-T solution or the alkaline control solution. Therefore, the authors conclude that irritating effects must be due to the readily available chlorin.

70. **Toxicity of Certain Antiseptics.**—The toxic action of a number of antiseptic substances in common use was investigated by Taylor and Austin. The method was to inject increasing doses into mice intraperitoneally and into guinea-pigs both subcutaneously and intraperitoneally. The only antiseptic of which the smallest fatal dose was smaller than the largest survival dose was dichloramin-T. Since two mice survived 4.7 mg. per 100 gm. of body weight, it is probable that 15.5 mg. rather than 1.6 mg. is to be considered the smallest fatal dose for this series. Of all the substances tested, eucalyptol and brilliant green were the most toxic, the lethal dose of each being 0.1 mg. per 100 mg. of body weight. Mercurophen, mercuric chlorid, and chloramin-T constitute the group with the next highest toxicity, the lethal dose being 1 mg. per 100 gm. of body weight. Dichloramin-T, proflavine and the four hypochlorite solutions tested follow in the order named with a lethal dose of about 10 to 15 mg. per 100 gm. of body weight. The least toxic chemicals are iodin and phenol, of which the lethal doses are about 50 mg. per 100 gm. of body weight. The lethal dose of Dakin's hypochlorite solution injected under the skin of the

abdomen of guinea-pigs per 100 gm. of body weight is the same as that determined intraperitoneally in the mouse. Chloramin-T and dichloramin-T administered in this manner gave rise to local necrosis with extensive sloughing. Therefore, the substances injected intraperitoneally into mice and guinea-pigs arranged in the order of their decreasing toxicity are: eucalyptol and brilliant green; mercurophen; mercuric chlorid and chloramin-T; dichloramin-T and proflavine; hypochlorite, Dakin's hypochlorite, Javelle water, and magnesium hypochlorite, iodin and phenol. Now that Dakin's bland solvent, chlorcosane, is available as a vehicle for dichloramin-T, the authors advise that eucalyptol should be discarded for this purpose because of its much greater toxicity.

Medical Record, New York

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71 Probing the Mind. J. V. Haberman, New York.—p. 839.
72 Mastoiditis. W. H. Huntington, Washington, D. C.—p. 849.
73 Treatment of Malaria. B. Robinson, New York.—p. 852.
74 Opportunities for Preventive Medical Work in Dispensary Clinic. A. M. Richardson, New York.—p. 853.
75 Roentgen Diagnosis of Disease of Stomach. W. H. Meyer, New York.—p. 857.

New York Medical Journal

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76 *Electro-Operative Bone Clamp. F. H. Albee, New York.—p. 913.
77 Study of Images Reflected from Cornea, Iris, Lens and Sclera. W. H. Bates, New York.—p. 916.
78 Smith-Indian Intra-Ocular Operation for Cataract. F. Allport, Chicago.—p. 924.
79 Organism Causing Poliomyelitis and How Disease Probably Spreads. H. Greeley, Brooklyn.—p. 925.
80 Relation of Industrial Hygiene to General Practice. L. I. Harris, New York.—p. 928.
81 Encourage Obscure Contributor. J. van Becelaere, Detroit.—p. 931.
82 Gallstones. S. Weis, New York.—p. 932. To be continued.
83 Treatment of Gunshot Injuries of Spinal Cord at Casualty Clearing Stations. H. M. W. Gray, Aberdeen, Scotland.—p. 937.
84 Epidemic of Sore Throat at Fort Ethan Allen, Vt. I. W. Brewer.—p. 938.

76. **Electro-Operative Bone Clamp.**—Albee has devised an electrically driven bone clamp for use in difficult cases, in conjunction with the traction table, although it has been found that the clamp can be successfully used alone and is a most powerful instrument per se. In several instances of malunited fracture of the femur of several months' duration and with two thirds inches of shortening (overriding), the fragments have been easily and quickly distracted and brought into alinement with little muscular exertion on the part of the operator for the reason that all the energy has been expended on the bone fragments themselves.

Northwest Medicine, Seattle

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85 Organic Basis of Neurasthenia and Surgical Cure. H. W. Riggs, Vancouver, B. C.—p. 131.
86 Operative Treatment of Fractures. C. D. Hunter, Tacoma.—p. 134.
87 Bone Transplants. M. G. Sturgis, Seattle.—p. 137.
88 Perforated Ulcer of Stomach and Duodenum. A. O. Loe, Seattle.—p. 140.
89 Postoperative Gaps in Abdominal Wall. R. C. Boyle, Vancouver, B. C.—p. 142.
90 Paralytic Ileus in Gunshot Wounds of Abdomen. R. D. Forbes, Seattle.—p. 144.
91 Intestinal Obstruction. A. S. Monro, Vancouver, B. C.—p. 147.
92 Importance of Early Diagnosis of Intestinal Obstruction. W. B. Holden, Portland, Ore.—p. 148.

Public Health Journal, Toronto

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93 Tables for Rapid Interpretation of Fermentation Tube Results. M. H. McCrady.—p. 201.
94 Tuberculosis and Maternity. D. A. Stewart, Ninette, Man.—p. 221.

Southwestern Medicine, El Paso, Texas

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95 Our Brothers in Khaki. W. A. Holt, Globe, Ariz.—p. 1.
96 Diagnosis and Treatment of Skin Lesions by General Practitioner. V. V. Wood, St. Louis.—p. 5.
97 Case of External Hydrocephalus Following Injury. E. B. Rogers, El Paso.—p. 19.
98 Prevention of Disease in War. L. L. Seamon.—p. 22.
99 Case of Kidney Stone. E. B. Rogers, El Paso.—p. 29.

Tennessee State Medical Association Journal, Nashville

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100 Duty of Profession in Present Crisis. E. T. Newell, Chattanooga.—p. 1.

Vermont Medicine, Rutland

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101 Anemia. C. W. Howard, Shoreham.—p. 79.
102 Symptomatology in Child. C. K. Johnson, Burlington.—p. 83.

Wisconsin Medical Journal, Milwaukee

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103 Social Medicine in Industries. C. H. Lemon, Milwaukee.—p. 453.
104 Health Insurance. A. W. Gray, Milwaukee.—p. 459.
105 Present Status of Tonsil Removal. H. B. Hitz, Milwaukee.—p. 463.
106 Plea for Conservation of Fingers. E. W. Maechtle, West Allis.—p. 465.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 20, 1918, **1**, No. 2990

1 *Vaginal Douching. W. E. Fothergill.—p. 445.
2 Treatment of Furunculosis and Other Deep Seated Coccogenic Infections by Collosol Manganese. M. Morris.—p. 446.
3 *Recovering Dysentery Bacilli from Stools According to Time Elapsing Since Onset of Disease. C. J. Martin and F. E. Williams.—p. 447.
4 *Two Fatal Cases of Icterus Gravis Following Injections of Novarsenobillon. P. C. Fenwick, G. B. Sweet and E. C. Lowe.—p. 448.
5 *Toxic Jaundice, with Atrophy of Liver, Followed by Regeneration and Recovery. B. G. R. Crawford.—p. 450.
6 Acute Metatarsal Overstrain (Foot Swelling). A. R. Jones.—p. 451.
7 *Amyl Nitrite Inhalations in Diagnosis of Mitral Stenosis. R. A. Morison.—p. 452.
8 Pylon, or Temporary Artificial Leg. W. H. Broad.—p. 453.

1. **Vaginal Douching.**—Fothergill says the vaginal douche can has, on the whole, been a curse to womankind rather than a blessing. Just as there was a pessary age, characterized by the haphazard use of pessaries in the treatment of the minor ailments of women, so there has been a long period of indiscriminate douching which has not yet reached its belated end. For a time douching remained under the control of the medical profession; but then the general public began buying douche cans on its own account, and the pernicious but apparently seductive habit of antiseptic douching is now generally begun on the advice of an elderly relative. Every patient who complains of minor pelvic ailments should be asked whether she douches or not; and, if she says "Yes," should be told to stop it. The vaginal surface has no glands, and is not a mucous membrane, but is covered by stratified squamous epithelium, which, though very strong and resistant to infection, is, so to speak, not quite waterproof. Thus the vaginal secretion is simply serum which exudes from the surface of the squamous epithelium, and which acquires its normal creamy appearance by admixture with leukocytes and epithelial débris. Sliminess of the vaginal discharge is due to an excess of mucus which comes from the lining of the uterus and not from the vaginal wall. The normal vaginal secretion is definitely acid in reaction, and this acidity inhibits the life of most septic and pathogenic organisms. Thus the normal content of the vagina is a barrier to ascending infections, and it is generally sufficient to protect the uterus.

Douching does actual harm, for it washes away the normal acid secretion; kills the acid-producing bacteria which are the normal inhabitants of the vagina; kills the superficial layers of cells, and irritates the subjacent layers. Further, it promotes hyperemia of the parts, and thus increases the quantity of the secretion, favors menorrhagia, congestive dysmenorrhea, and intermenstrual congestive pain. This explains the fact that the woman who douches much never gets rid of her vaginal discharge, and generally has other complaints in addition. In septic infection of the uterine cavity after abortion or labor, vaginal douching clearly does not

touch the spot at all, and intra-uterine douching is positively dangerous, as it sometimes causes fatal peritonitis by forcing septic material and noxious antiseptics through the tubes into the peritoneal cavity. The proper way to treat uterine sepsis is to dry clean the uterine cavity thoroughly, using a general anesthetic if necessary; to apply concentrated antiseptics with no excess of fluid; and thereafter to leave the uterus and vagina severely alone. In gonorrheal infection of the vulva the infection is very likely to be carried up through the vagina to the cervix, whence the gonococcus has a clear run over the mucous lining of both uterus and tubes. When the cervical canal is once infected, douching is futile, and proper disinfection under anesthesia is the only method likely to be effective.

Though antiseptic and medicated douches might well be dispensed with altogether, exceptions are, the palliative treatment of cancer of the uterus; when preparing a prolapsed and ulcerated vagina or cervix for operation the nurse may give one or two mildly antiseptic douches every day for a week or ten days, during which the patient is kept in bed and the vagina lightly packed; after vaginal operations, also, a few antiseptic douches are useful on those rare occasions in which the incisions become septic. In such cases the indication is definite. Under certain circumstances it is desirable to increase pelvic hyperemia, and for this purpose the prolonged warm douche is useful if given under proper supervision and for a limited period. Typical cases for this treatment are pelvic cellulitis following infection of a torn cervix with a more or less massive deposit of inflammatory exudate in the pelvic cellular tissue, where absorption is favored; inflammatory deposits in other pelvic tissues and organs. Thus, in the subacute phases of pelvic infection, vaginal douching is seen at its best. A slow stream of normal saline solution at a temperature of 100 F. to, say, 105 F., kept up for ten or twelve minutes once or twice a day for two or three weeks, forms a part of the proper treatment of these cases, but it must be done with the patient lying on her back.

3. **Recovering Dysentery Bacilli from Stools.**—Martin and Williams say that prior to the war the notion seems to have been widespread that the bacteriologic diagnosis of dysentery was as satisfactory as that of diphtheria, and measures for the control of epidemics have been founded to some extent on this assumption. Their experience of laboratory work in the eastern Mediterranean and in Egypt in 1915 and 1916, however, lead them to the conclusion that the chance of recovering dysentery bacilli from the stools was, after the first few days of the disease, a small one. Similar experience seems to have been had by Kolle and his co-workers, and by Seligmann and Cossmann. Seligmann at a laboratory near the front had opportunity to examine material from the recently evacuated sick. Under these conditions the results were that *B. dysenteriae* Shiga, was recovered in 38 per cent. of cases examined. Seligmann gives the percentage positive findings according to the state of the illness as follows: first week, 70 per cent.; second week, 53 per cent.; third week, 18 per cent.; fourth week and later, nil. The authors give the technic of their method and tabulate their percentage of positive results of 1,050 efforts to recover dysentery bacilli from stools at various stages of the disease, June to December, 1917, as follows: the first to fifth day, 68.0; sixth to tenth day, 17.4; eleventh to fifteenth day, 6.3; sixteenth to twentieth day, 3.1; twenty-first to thirtieth day, 1.5; thirty-first to fortieth day, 3.0; forty-first to fiftieth day, 3.0, and fifty-first to one hundreth day, 0.0. Their conclusions are that the chance of recovering dysentery bacilli rapidly diminished after the first few days. This appeared to be the case whether the stools remained characteristically dysenteric or not. The mucopus and epithelial débris discharged in the milder pathologic condition, and the necrosed coagulated superficial layers of the mucous membrane in the more serious, is, except in the earliest stages of the disease, invaded by hosts of intestinal organisms which soon overwhelm the dysentery bacilli originally present. This places a serious limit on the value of a bacteriologic diagnosis of dysentery. If reliance had been placed on the results of one examination, but 15 per cent. would have been discovered.

4. **Fatal Cases of Icterus Gravis Following Novarsenobillon Injections.**—The authors report two fatal cases of icterus gravis following injections of novarsenobillon, in soldiers, aged 26 and 20. These two cases resembled one another closely in their history, clinical manifestations and morbid anatomy. After receiving five doses of novarsenobillon followed by an interval (of seven and fourteen days, respectively), the patients became jaundiced. At first the symptoms were mild, but the jaundice gradually deepened, the liver became greatly reduced in size, persistent vomiting occurred, and the patients died twenty-one and forty days, respectively, after the onset of symptoms. Necropsy showed an acute cirrhosis of the liver. Both were cases of primary syphilis and showed no secondary manifestations. Case 1 gave a negative Wassermann reaction at the conclusion of treatment, but Case 2 gave a double positive reaction on the last occasion on which it was taken.

5. **Toxic Jaundice, with Atrophy of Liver.**—Crawford reports on three cases of toxic jaundice, with atrophy of liver, followed by regeneration and recovery. The patients were workers on T. N. T. manufacturing processes, and were exposed both to fume and skin contact. Two were men aged 29 and 22, and the third a woman of 19. The diagnosis, including the liver atrophy, was confirmed in each case by a government medical inspector of factories. The treatment was necessarily somewhat empirical. The skin was encouraged to act, the bowels kept free by a mild aperient (white mixture) and enemas; nourishment was given in small quantities at frequent intervals—milk and soda water, meat juice, thin broths, barley water, etc.; meat extracts were well tolerated, while fruit and fruit juices disagreed and caused vomiting. Injections of 6 ounces of a saturated solution of sodium bicarbonate were given by the rectum twice daily at the height of the illness, and the same salt by mouth also in a mixture and in milk to the amount of 2 drams daily; whenever this was discontinued the patients became worse. All three patients slowly rallied, and in the fifth or sixth week of the illness began definitely to improve. Convalescence, however, was slow and slight relapses frequent, the patient becoming drowsy and sick, and having recurrence of epigastric pain if allowed to do much at first, or if excited by friends or visitors. The chief points of interest in the cases were: 1. The regeneration of the liver after very extensive destruction. 2. The beneficial result of the exhibition of sodium bicarbonate in what seemed to be hopeless cases. 3. The absence of T. N. T. in the urine when it was being excreted by the bowel.

7. **Amyl Nitrite in Diagnosis of Mitral Stenosis.**—Morison says that in twelve cases of soldiers in whom presystolic murmurs were suspected, but in whom they could not be recognized with any degree of certainty, amyl nitrite (inhaled from a 3 minim capsule until a reaction was evident) brought forth unmistakable murmurs in six instances. Among the first signs of early mitral stenosis is an accentuated first sound; from this sign the sounds pass to a simple reduplication with accentuation; to perhaps a triplication, and thence to what may, or may not, be termed a murmur, according to the idiosyncrasies of the examiner. The point which is to be emphasized is that amyl nitrite, in a large proportion of cases, will raise the scale of the signs, bringing them nearer to a point in which a diagnosis becomes certain.

Lancet, London

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9 Modern English Skull. F. G. Parsons.—p. 557.
10 *Dysentery Bacilli: Differentiation of True Dysentery Bacilli from Allied Species. F. W. Andrewes.—p. 560.
11 *Etiology and Treatment of Trench Foot. J. E. Sweet, G. W. Norris and H. B. Wilmer.—p. 564.
12 Bacillemia Due to Various Organisms. J. G. Thomson.—p. 566.
13 Thermoprecipitin Reactions as Aid to Rapid Diagnosis of Bacillary Dysentery. L. F. Hirst.—p. 567.
14 Acute Infective Ophthalmoplegia, or Botulism. W. Harris.—p. 568.
15 *Epidemic of Toxic Ophthalmoplegia. A. J. Hall.—p. 658.
16 Case of Infection with Bothriocephalus Latus. T. T. O'Farrell.—p. 570.
17 Peripheral Nerve Lesions After Antitetanic Serum. S. C. Dyke.—p. 570.

10. **Dysentery Bacilli.**—Andrewes in differentiation of true from related forms of dysentery bacilli employed sugar reactions, indol formation, alkali formation in relation to initial acidity, the acid agglutination test, and agglutination with specific serums. With reference to the latter he finds: 1. Shiga's bacillus is readily agglutinated and to end titer by any of the stock Shiga serums. No instance of an inagglutinable Shiga has been met with in the course of this work. 2. *B. ambiguus* is not agglutinated by Shiga serums, even in low dilution. 3. Flexner Y bacilli are usually agglutinated to end titer, or its neighborhood, by one or another of the stock serums on the market, but different strains may respond to different serums. 4. Of the allied bacilli, *B. alkalescens* fails to agglutinate with Flexner Y serums within the usual time limit of four to five hours. 5. *B. dispar* is in much the same case. The serologic relations of *B. alkalescens* and *B. dispar* with the Flexner Y bacillus seem thus remote, though there is a suggestion of some small element in common. The species described as *B. ambiguus* and *B. alkalescens* seem fairly well defined and can be rejected as having no connection with dysentery. With regard to the lactose fermenting forms which Andrewes has grouped under the name *B. dispar*—more for the sake of a convenient general term than because he believes them to be a single entity—much more work is necessary. There is a general belief that the lactose fermenters can be excluded in dysentery work, and this is very likely correct; at least, they cannot be returned as dysentery bacilli. Even when all these simulators of *B. dysenteriae* are rejected there will doubtless remain a certain proportion of aberrant strains which cannot be thus accounted for, and some of these may be really atypical members of the Flexner Y group. Judging, however, from this series of 100 strains, the majority of which were sent as presenting abnormal features, such a residue would be very small.

11. **Treatment of Trench Foot.**—The authors try to show that the disease in all its forms starts from the interior, and that the infections which often mark the course of the disease are but the natural secondary manifestations of the reaction of devitalized tissues to infective agents; that, therefore, the treatment of the condition should be directed to the skin only in so far as these secondary infections have resulted in surgical conditions. Standing still in the cold and wet may be the causal factor, in "trench foot," as it must be the exciting factor, in which event, however, all men should be susceptible. Since all men under the same conditions do not fall victims, and since in the men who are affected these facts of clinical blood pressure which the authors herewith demonstrate are to be found, they feel compelled to the conclusion that "trench foot" is a disease incited by the effect of cold and inaction on a foot whose vasomotor system is physiologically impaired, and therefore, though more rarely, they encounter a "trench foot" and "trench knees." The explanation of "trench foot," based on their reasoning and their findings, is that there is a spasmodic contraction of the arterioles of the foot. The first result of this arteriole spasm, is ischemia with numbness, tingling, burning pain; the second result is a disturbance of capillary circulation, perhaps due to back pressure from the veins, perhaps due to the loss of rhythmicity of the driving force, perhaps due to the mere stagnation, with swelling of the foot from edema and diapedesis of red cells. This results in devitalization of the skin and the favoring of infectious processes, and may extend to actual gangrene. The number of cases of "trench foot" on which the authors have made blood pressure estimations to date is fifty-three. Pressures were also taken on eight other cases not suffering with "trench foot" to serve as controls. With but one exception an inequality of the leg and arm pressure was found in the fifty-three cases of "trench foot," consisting in a very definite increase of the leg over the arm pressure. In the one exception the arm pressure exceeded the leg pressure; after forty-eight hours reverting to the condition found in the other fifty-two cases. In the eight patients used as controls the pressure was found equal in the arm and leg. The leg pressure was also found increased in direct proportion to the severity of the case. As the patient's condition improved the pressure was found to drop, or in some instances, few in number, the arm pressure would rise, and by the time the patient had recovered, the arm and leg pressure had become equal; thirteen cases so far have been observed which show this phenomenon. These thirteen cases, together with seven suffering from other conditions, justify the conclusion that the differences observed in "trench foot" cannot be ascribed to some technical fault in the authors' blood pressure readings. The differences in arm and leg pressure are as follows: the maximum 30 mm., the medium 15 to 20 mm., the minimum 8 to 10 mm.

The authors are convinced that potassium iodid is a most important addition to the treatment of "trench foot" for the prompt alleviation of pain, if for no other reason. In thirty-one cases potassium iodid in 20 gr. doses three times daily was given, with the result that there was a decided relief of pain in twenty-four hours after the first dose had been given. There was also coincidently with the relief of pain in many of the cases a fall of pressure, an average drop of the leg pressure of 10 to 15 mm. In all of the thirty-one cases the potassium iodid was withheld for twenty-four hours on three occasions. The complaint from the patient the following morning was increased pain and insomnia. In some of the cases the dose of potassium iodid was increased to 30 grains three times daily, as 20 grains did not seem sufficient to control the pain. One of the twenty-nine patients treated with potassium iodid alone was also a severe type, with marked discoloration and blebs of both feet. The potassium iodid was sufficient in this case to control the pain. Relief from pain is absolute, but from comparing the cases treated with potassium iodid with others treated by the ordinary methods, the relief is greater in the cases in which the potassium iodid alone has been given, and the duration of the attack is markedly shortened. The only other treatment used in these cases was hot-water bottles to the soles, boric powder dusted on the feet, and flannel bandages.

15. **Epidemic of Toxic Ophthalmoplegia.**—Hall describes a toxic ophthalmoplegia associated with acute asthenia and other nervous manifestations which occurred in epidemic form. The main features of the cases so far observed are as follows: The patient, while in ordinary health, begins to be languid and drowsy, with or without headache, and other symptoms of malaise. In a few hours or days the weakness has increased very much, and indeed, may amount to complete prostration, so that he lies helpless in bed and can hardly move a muscle. Together with this, the drowsiness becomes more marked and develops into real lethargy. Pyrexia may be absent throughout, or it may be present from the first, become severe, and persist. Cerebral excitement and delirium has been a prominent feature in some of the cases. In most of them local symptoms pointing to lesions in the bulbopontine area are present at some time or other. Of these ptosis, ophthalmoplegias of various extent, nystagmus, facial palsy of lower neuron type, unilateral or bilateral, speech affections, and dysphagia have occurred in different combinations in different cases. Muscular tremors of a curious kind have been noted in some; in one case this formed the most prominent symptom, and alcoholism was suspected. In some cases the general muscular asthenia has been more marked on one side of the body than on the other—either arm alone or arm and leg. But there has been, as yet, no evidence of a localized limb paralysis such as one commonly sees in acute poliomyelitis.

Hall has divided the cases provisionally into two broad groups: (1) the meningitic; (2) the asthenic. 1. Meningitic: These cases simulate meningitis very closely, and at a certain stage it is almost impossible to be sure they are not. So far the cerebrospinal fluid has shown no organisms or abnormal cells and its pressure has not been increased, and in a few days the symptoms subside and improvement sets in. Four of the cases were of this type. 2. Asthenic: The asthenic group presents a clinical picture of drowsiness and languor replacing excitement and delirium. The patient without any obvious cause is rendered quite helpless, and lies in bed like a log, unable to turn over or to move the limbs without

assistance. There is usually no pyrexia throughout. The effect of the muscular asthenia in the neck and face is very extraordinary. The first case of the series was a boy, aged 15. The facies suggested a myasthenia gravis. In another case, a woman, aged 56, the facial expression was so suggestive of "Parkinson's mask" that Hall thought at first she must have paralysis agitans. As a matter of fact, this was the case referred to above in which general muscular tremors were the chief symptoms. In a few days the symptoms disappeared. In this group there is also a peculiar posture of the hands across the trunk and a kind of plastic tone, not unlike that seen in paralysis agitans. The tremor, however, has no resemblance to the tremor of that disease. Although in most of the cases the symptoms begin to disappear in a few days or a week or two, yet in one case, a man, they still persist after three weeks. The sphincters are not as a rule affected.

Of the ten cases seen up to the present there were: males, four; females, six; ages range from 9 to 70. Only one was under 10. Eight were over 20. It is evident that the etiologic factor is something which acts as a widespread poison on the central nervous system. Such a poison might be of organic or of inorganic origin. It may be connected with some poisonous element in the food or some deficiency of essential ingredients. Attention has been called to the similarity between these cases and certain outbreaks of botulism, due to the consumption of food infected by *B. botulinus*. Investigations on these lines are proceeding. So far, only in one case has the patient in any way attributed the illness to food.

Bulletin de l'Académie de Médecine, Paris

April 9, 1918, 79, No. 14

18 *Magnesium and Cancer. Dubard.—p. 295.
19 Dermatitis, etc. Produced by Cabbage Caterpillar. E. Crouzel. —p. 297.

April 16, 1918, 79, No. 15

20 Repair of Wounds of Palate and Nasal Fossas. H. Morestin. —p. 303.
21 Rapid Healing under Carrel Treatment after Mastoid Operations. G. Mahu.—p. 309.
22 *Alarmists. C. Vallon.—p. 312.

18. Magnesium and Cancer.—Dubard gives magnesium carbonate (from 8 to 12 gm. a day) after operations for cancer. He found that marked improvement followed this while ordinary alkaline medication, such as Vichy water, had an unfavorable influence in incipient malignant disease. He believes that there is some connection between neuropathic disorders and the origin and course of cancer, and we all know the important part played by magnesium in the normal functioning of the nervous system. Loss of magnesium seems to favor the onset and development of malignant disease, while administration of magnesium serves to restore these losses and exert a favorable influence on tumors, warts, papillomas, etc. Between 1900 and 1916 he performed 550 operations for cancer, and of 360 patients kept under observation 125, that is, 34 per cent., are known to be living five years at least since the operation. Others have died after survivals of six or seven years. He has thus a global total of 24 per cent. of relatively long survival. His systematic administration of magnesium carbonate kept up for months, he thinks, has had much to do with these favorable experiences. Occasional association with phosphoric acid, sodium fluorid or manganese seemed to aid in the assimilation of the magnesium, he says. The prevalence of cancer in the elderly he is inclined to explain by the substitution in the tissues of calcium for magnesium with advancing age. Some organic combination of magnesium, he adds, might be better than the *magnésie blanche* he has been using.

22. Alarmists.—Vallon presents arguments to show the necessity to beware of alarmists during the war. They are either seeking to depress the morale of the people and army, and in that case they come in conflict with the espionage and similar laws, or they are mentally irresponsible. There is nothing astonishing in the fact that pathologic melancholia and other psychoses take this form of alarmist pessimism in this war environment. It is the alienist's task to distinguish between the traitorous and the pathologic alarmists.

Bulletins de la Société Médicale des Hôpitaux, Paris

Feb. 15, 1918, 42, No. 6

23 *Transfusion in Measles. L. Ribadeau-Dumas and E. Brissaud. —p. 147.
24 *Relics of Inoculation Tubercle. Ribadeau-Dumas and Perrochon. —p. 150.
25 *Spinal Fluid in General Paresis. J. A. Sicard and H. Roger. —p. 154.
26 *Slow Endocarditis. H. Fayolle.—p. 159. R. Debré.—p. 163.
27 Autochthonous Malarial Aortitis. G. Rosenthal and S. Bloch. —p. 166.

Feb. 22, 1918, 42, No. 7

28 Aneurysm of Aorta with Inherited Syphilis. H. Barbier.—p. 173.
29 *Paroxysmal Vomiting with Inherited Syphilis. H. Barbier.—p. 174.
30 Peripheral Facial Paralysis. Lévy.—p. 177.
31 *Syringe for Aspiration and Transfusion. J. E. Larché.—p. 178.
32 *Chronic Arsenical Poisoning. J. A. Sicard and H. Roger.—p. 181.
33 *The Dyspepsia of Repatriated War Prisoners. F. Ramond and A. Petit.—p. 186.
34 Spirochetosis. Manine.—p. 190.
35 The Resisting Power of the Corpuscles in Malaria. E. May.—p. 193.
36 Suprarenal Symptoms with Chronic Nephritis. R. Porak.—p. 197.

23. Transfusion in Measles.—Two Arabs were brought to the base hospital with extreme collapse in the course of measles. One speedily died, but the other recovered after transfusion of citrated blood from a measles convalescent. The eruption was diffuse and ecchymotic, the fever up to 41 C., with collapse, anuria, incontinence and toxic dyspnea. After transfusion of 100 c.c. of blood from a man who had been cured of measles for a week, in two hours the vital functions had recuperated and speedy recovery followed.

24. The Initial Lesion in Tuberculosis.—Dumas and Perrochon in making roentgen examination of the chests of men with various diseases or wounds or healthy controls made a special point of investigating for some primary initial tuberculous lesion, dating probably from childhood. They found evidences of such in almost two thirds of the adults examined.

25. The Reaction in the Spinal Fluid in General Paresis.—Sicard and Roger reiterate that the Bordet-Wassermann reaction is always positive in the cerebrospinal fluid with progressive paralysis, and is irreducible even under intensive treatment. Their findings have been invariably positive in more than 100 cases of general paresis in the last six years. They insist that negative findings disprove the diagnosis of general paresis. In the blood, the reaction was positive only in 95 per cent. of their cases, and it veered to negative in all but 35 per cent. under intravenous arsphenamin treatment.

26. Slow Endocarditis.—Fayolle reports the clinical history of a case in a man of 33, and Debré the necropsy findings in a case previously published. Debré has found constantly in his cases a streptococcus nonvirulent for laboratory animals, and its cultures do not form a halo on solid mediums with blood. It turns hemoglobin green, and hence Schottmüller calls it the *Streptococcus viridans*. The endocarditis is of the vegetative type; enlargement of the spleen and multiple joint lesions are constant, as also multiple infarcts in the abdominal organs. Subacute nephritis is always found at necropsy. The rupture of some intracranial aneurysm is usually responsible for death.

29. Paroxysmal Visceral Disturbances with Inherited Syphilis.—Barbier emphasizes the frequency with inherited syphilis of localized syndromes, such as paroxysmal vomiting, paroxysmal enteralgia and paroxysmal incontinence of urine. The paroxysmal vomiting seems to be most frequent between the ages of 5 and 10. It occurs usually in the morning, fasting, generally preceded by frontal headache a few hours or even days before the paroxysm of vomiting comes on. The headache keeps up during the vomiting, but stops when the vomiting is over. The child's sleep is not so sound as usual, and there may be signs of insufficiency of the liver. There is no nausea; the vomiting occurs suddenly, in a gush. After expulsion of the food in the stomach, the vomit seems to be pure gastric juice. The child may thus vomit twenty times in the twenty-four hours, and there may be some blood in the vomit at last. As soon as the child stops vomiting it returns to its play. The attacks may last from a few hours to two or three days. There is no periodicity about their recurrence;

there may be two or three in a few months and then no more for several years, or there may be two or three a year. They are rarely closer together than this. Occasionally the attacks are accompanied by meningeal symptoms, somnolence, arrhythmia, and tendon and pupil changes. Unless a positive Wassermann reaction can be obtained, it is often difficult to differentiate this inherited syphilis vomiting from that with an incipient cerebellar tumor or tuberculous meningitis. With the latter there is usually fever at times, while there is none with this syphilitic vomiting. Appendicitis may be suggested by this latter, but lumbar puncture should be done before appendicectomy in dubious cases. Attacks of enteralgia with diarrhea may alternate with the vomiting, and incontinence of urine may be referred to the same cause. This incontinence may accompany the gastric crisis, or there may be attacks of transient incontinence occurring alone. A positive Wassermann reaction in such cases explains the incontinence. He treats such children with weak doses by the mouth, rejecting the inunction method which he regards as dangerous for children. He knows of cases of sudden death after mercurial inunctions.

31. **Syringe for Both Aspiration and Transfusion.**—Larché's *transfuso-aspirateur* is fitted with a combination trocar-needle. A serous or purulent pleural effusion can be punctured and evacuated and an aseptic gas or disinfecting solution can be injected into the cavity, all through the one syringe and at the one operation.

32. **Chronic Arsenical Intoxication After Arsphenamin Treatment.**—Sicard and Roger discuss the three types of disturbances that may follow intravenous treatment with any of the new preparations of arsenic: disturbances in the nature of anaphylaxis, disturbances from the mixed reaction of the arsenic on the spirochetes—their virulence enhanced in response to the action on them—and disturbances from pure arsenical intoxication. They report here five cases of general paresis in which intravenous injection of a French preparation of arsphenamin had been rapidly pushed to a dose of about 1.8 gm. per week, or 15 or 30 cg. had been given daily. This intensive treatment was given at the demand of the patients and their families, but after from 11 to 12 gm. had been administered, erythema, falling of the hair, abscesses and ulcerations in one of the men testified to the chronic arsenical poisoning, and he died in consequence of ulcerations in pharynx and tongue, with hemorrhages. The others all seem to have benefited materially by the treatment, but the Wassermann reaction is still positive. These men took 15 or 17 gm. in the course of two or three months. Sicard found the skin reaction to iodin a reliable means of detecting the approach of arsenical intoxication. When the skin has reached the limit of its endurance, painting with tincture of iodin brings out a crop of blisters. He applies this test to the forearm, and the dermatitis with the vesicles is apparent the next day. This sign became manifest after intravenous injection of from 10 to 12 gm. of novarsenobenzol in the course of about two months, and the reaction was positive a long time after suspension of the drug. With the big weekly doses, the kidneys and the liver suffered most, and by the eighth or ninth gram, albuminuria and subjaundice were evident. With the small daily doses, the kidneys and liver did not seem to suffer appreciably and there were no symptoms from them, but the ectoderm seemed to be unable to stand more than 12 gm. in the two months.

33. **Dyspepsia in Men Returning from Prison Camps.**—Ramond and Petit have examined forty men repatriated after long imprisonment in Germany, and practically all were suffering from acute or subacute gastro-enteritis, the condition much like those in herbivora kept on a meat diet. The corroboratory evidence of all shows that the diet at the Würzburg, Darmstadt and Gräfenburg camps consisted of bread containing bran, straw, potato, corn and sawdust, barley coffee, no sugar, bean or turnip soup, and at supper 40 gm. of cheese of the Brie type or a piece of sausage the size of one's thumb, or herring. They comment that "the Germans have no excuse for these scanty rations, for the potato harvest in 1917 was particularly good, and the stock of pigs was never so large. The Austrians, on the other hand, although with greater scarcity of foodstuffs, yet have made a point of respecting the international conventions which they had signed." Among the repatriated from Germany whom they examined, fully 10 per cent. had confirmed gastric ulcer; four required an operation for stenosis of the pylorus.

"These gastric disturbances," they add, "are not the only ones nor the most frequent. There is the long, sad train of those with advanced consumption. What the shells and the poison gases fail to accomplish, the prison camps complete. We witness thus the slow and implacable death agony of all our young men, without a single word of protest being raised. And while our sons are perishing obscurely in the jails and camps of Germany, France, always foolishly generous, does not reciprocate. Our German prisoners have abundant food, which they can vary; they enjoy excellent health. When the war is over they will take up again the economic struggle, with all their forces intact, and it will not be our soldiers returning anemic from Germany, in greatly diminished numbers, who will be able to crown the victory of our arms with the economic victory."

Paris Médical

March 30, 1918, **8**, No. 13

37 *The Psychoses of Malaria. A. Porot and R. A. Gutmann.—p. 241.
38 Arterial Findings with Oscillometer as Guide in Operating. G. Jeanneney.—p. 248.
39 *Bacteriologic Findings during Operations. G. Rosenthal.—p. 251.

April 6, 1918, **8**, No. 14

40 *War Bread from Biologic Standpoint. E. Weill, and G. Mouriquand.—p. 258.
41 The Meat Question. G. Linossier.—p. 267.
42 The Milk Supply of Paris. C. Porcher.—p. 269.
43 Sugar and Saccharine. G. Pouchet.—p. 273.
44 The Soldiers' Ration. M. Labbé.—p. 275.

37. **Psychoses in Malaria.**—Porot and Gutmann describe three varieties of acute malarial psychoses and four of the prolonged type, with several subvarieties. They are in charge of a *centre neurologique*, and their experience emphasizes the imperative necessity for vigorous and persevering treatment (quinin) in all cases of the mental confusional state, the initial psychopathy, in malaria. Under proper treatment this often subsides, and thus is warded off the prolonged and rebellious form of malarial psychopathies. In one of the typical cases reported, the young man developed the syndrome of dementia praecox within a year of contracting malaria in Macedonia. No other pathologic antecedents were known in the personal or family history except that he had had convulsions as a child. In another case the man of 37 developed acute mania but under seven months of sanatorium treatment regained his mental poise, although still somewhat excitable.

39. **Bacteriologic Control at Advanced Surgical Station.**—Rosenthal comments on the importance of the bacteriologist's statement that a wounded man recently brought in, and apparently not gravely wounded, yet harbors the perfringens for instance. The surgeon is thus warned of the necessity for extra thoroughness in his operation. The Carrel-Dakin method seems to be especially effectual in clearing out the large anaerobes. Every war operation may be modified by the bacteriologic findings, either spurring to extra care or justifying less vigorous measures. The bacteriologic control during the intervention must be restricted, of course, to rapid examination with the ultramicroscope when possible, without staining or some simple stain, the gram—these will readily show the group to which the microbes in the specimen belong. The perfringens, in particular, is the one that seems most to be dreaded. The bacteriologist thus in five minutes can tell the surgeon that the wound is aseptic or contains diplococci, or there is complex diplobacillary infection with both aerobes and anaerobes.

40. **War Bread.**—This is a study from the biologic standpoint of the various materials now used in making bread. Among the practical conclusions is the suggestion that possibly an aqueous extract of bran, rice hulls or other hulls of grains might contain the vitamins necessary for health, and if bread was made with this "bran water" it would not

be necessary to burden the digestive tract with so much cellulose. Weill and Mouriquand report considerable experimental research on pigeons, confirming the importance of these vitamins. They say, "Notwithstanding the Americans, we are at present obliged to live almost exclusively on our supply of wheat, and the 1917 crop was below the average." Their experiences confirm further that bread made with lime water, instead of ordinary water, seems to keep better and be more palatable, free from the bitter taste which the "war bread" sometimes leaves in the mouth. The Italian "Bergamo bread" is made of whole grain without grinding. It is subjected to maceration for two days, in water at 20 C., and it is then mashed and used directly for making dough. There seems to be some germination of the grain, and this seemed to increase the nutritional value of the grains for guinea-pigs in their tests. The germination possibly aids in transforming the albumins into peptones, or amino-acids, and the starch into dextrin and glucose.

Presse Médicale, Paris

March 21, 1918, **26**, No. 17

45 *Auto-Bone Flap for Gap in Skull. R. Le Fur.—p. 153.
46 Arsenic Preparations in Relapsing Fever. Dumitresco-Mante.—p. 155.

March 28, 1918, **26**, No. 18

47 *Acute Rheumatism with Chronic Heart Disease. O. Josué, M. Parturier and A. Berrut.—p. 161.
48 Extraction of Projectiles in Hilum of Lung. R. Didier.—p. 162.
49 Frequency of Association of Streptococci and Staphylococci in Chronic Osteitis. E. S. Harde and A. Hauser.—p. 164.

45. **Cranioplasty.**—Le Fur has applied in thirty-seven cases the technic he describes with illustrations, and has found it constantly reliable while its simplicity and ease commend it above other methods. He splits horizontally the bone of the skull over the desired area, and then turns the upper slice back, as if on a hinge, thus covering the opening in the skull. The periosteum is loosened back from the farther edge of the bone flap thus turned over, and it is used to suture the flap to the periosteum of the skull beyond. The skull then shows the rectangular flap with its inside turned up, and the rectangular space in the skull beyond, from which the flap was split off. The tables of the skull are easily separated, and the flap is taken large enough to extend beyond the hole to be covered. The method is applicable even for very large gaps in the skull, as two flaps can be cut and turned back to overlap, thus covering a large area.

47. **Recurring Acute Articular Rheumatism in the Course of Long Established Heart Disease.**—Josué and his coworkers refer to *poussées rhumatismales* in the form of joint swelling and pain, or pain in the muscles occurring in the course of chronic heart disease. They are liable to be mistaken for tonsillitis or influenza or acute bronchitis. The heart symptoms are overshadowed by those from the exacerbation of the rheumatismal infection. Or it may act on the heart alone, sparing the joints, including a febrile asystole with or without general disturbance; congestion of the liver; edema of the legs; dark colored, scanty urine and arrhythmia. Under the salicylates the symptoms promptly retrogress, while they persist stubbornly under other measures. They warn that the doses must be large enough to be effectual, from 6 to 8 gm. daily for several days, continuing with 4 gm. for some time. They give about the same amount of sodium bicarbonate with it to insure tolerance by the stomach. They give children 0.5 gm. per year of age up to 6, and then 3 gm. daily. Unless the salicylic medication is vigorous and long kept up, the infection is not conquered but persists in an almost latent form continuing its ravages to irreparable lesions.

Progrès Médical, Paris

April 6, 1918, **33**, No. 14

50 *Malaria in France. L. Leger, G. Mpuriquand and A. de Kerdrel.—p. 117.
51 Traumatic Total Facial Diplegia. L. Marchand.—p. 120.

April 13, 1918, **33**, No. 15

52 *"Embalming" Treatment of Wounds. L. Mencière.—p. 125.
53 Psycho-Pathologic Explanation of Confusional Mental States. G. L. Duprat.—p. 129.
54 Mechanism of Psychotherapy for Functional Contractures. H. Piéron.—p. 132.
55 Case of Concussion of the Chest. P. Batigne.—p. 135.

50. **Malaria in France.**—It was early recognized that the men returning from Macedonia with malaria might import the disease and form foci of infection for others, creating new foci or rousing long slumbering foci. A commission was appointed to study the subject, and the country was charted to show the regious where the anopheles abounds and where it cannot be found. The men returned to France with malaria are now distributed in the nonanopheles districts, but before the danger was recognized, several active foci had developed. In some the infection was traced to soldiers from French China, carriers of the malaria parasites.

52. **The Mencière Treatment for War Wounds.**—Mencière's aim is to fill the wound with a fluid which will hold the microbes in check while soothing and relieving pain. The man can then be safely left without further treatment for several hours or even days, confident that the wound will be found practically *in statu quo* when conditions permit thorough surgical treatment. Mencière here quotes the testimony of numerous army surgeons on the efficacy of this embalming treatment in its special field, that is, when a big drive is on, or other conditions prevent careful surgery at once. He says that the formula that has stood the test of thousands of experiences is 10 gm. each of guaiacol, eucalyptol and balsam of Peru; 10 gm. of iodoform; 100 gm. alcohol and ether to 1 liter. For one or two applications only, for severe gangrenous wounds, he substitutes 10 gm. of benzoic acid in the formula, or merely adds 9 gm. of benzoic acid to the first formula. He explains the action of the different ingredients, especially the penetrating action of the ether which follows the microbes into the depths of the tissues lining the cavity, where the microbes are most active; those free in the cavity are already dead. The fluid is sprayed copiously into the wound, and this can be done by any one. It does not interfere with the surgeon's work later. The fluid can be used further as a systematic dressing after the surgical toilet of the wound. The protection conferred by this dressing seems to be only for twenty-four hours at most. The official instructions from the army medical department, dated October, 1917, state that, in case of precipitate evacuation of the wounded, after excision of devitalized tissue it is advisable to apply some dressing the action of which would continue during the entire duration of the transportation. No particular dressing was specified, but Mencière insists that his formula answers the purpose, and that 1,200 or 1,300 army surgeons are using it.

Revue de Médecine, Paris

Sept.-Oct., 1916, **35**, No. 9-10, Pub'd. Feb., 1918

56 *Concussion of Cervical Spinal Cord. H. Claude and J. Lhermitte.—p. 535.
57 Cerebellar Parasyndrome from Wound of Worm. A. Léri.—p. 555.
58 *Obliteration of Arteries and Nervous Ischemia in the Wounded. R. Desplats and A. Buquet.—p. 578.
59 *Spasmophilia and Intoxication as Factors in Epilepsy. L. Plantier.—p. 620.
60 Tuberculomas. Gougerot and Déneéchau.—p. 644.
61 Skin Reaction to Vaccine. H. Pied.—p. 658.

56. **Concussion of Cervical Spinal Cord.**—Claude and Lhermitte describe cases from their experience in which the concussion of the spinal cord in the neck from a projectile entailed grave quadriplegia, hemiplegia or monoplegia and a cerebellospasmodic set of symptoms without actual paralysis. They have encountered also a number of abortive cases of these various types. Notwithstanding the apparent gravity of the paralysis, the evolution has been constantly favorable. Motor function and sensibility have gradually returned. This is in marked contrast to the course of similar lesions in the dorsal, lumbar and sacral spinal cord.

58. **Nervous Disturbances from Wounds of Arteries.**—Desplats and Buquet declare that not enough attention has been paid to injury of the medium seized arteries in the nervous disturbances of the wounded. Obliteration of a trunk artery is enough in itself to entail motor, sensory,

and trophic disturbances and modify the electric reactions. The terminal distribution is characteristic, and these disturbances are the more pronounced the higher the segment of the artery involved, and at points where collateral circulation is less readily established, especially in the arm. The zone of the axillary artery is the most dangerous. Traumatic obliteration of this artery may alone entail ulnar, median or radial paralysis, with the reaction of degeneration in the segment of the arm involved and complete anesthesia of the tips of the fingers. The fingers may also show characteristic deformity. This set of symptoms becomes attenuated as the obliteration or compression of the artery is farther from the trunk. In the leg the symptoms are masked by the tendency to gangrene. In the majority of cases, however, both the artery and the nerve are injured by the projectile. To operate on the nerve and neglect the artery is as futile as to operate on the artery and neglect the nerve.

59. **Epilepsy.**—Plantier epitomizes his opinion of epilepsy in the statement that it is a "toxicate of spasmophilia." Spasmophilia is usually an inherited taint, but it may be acquired in the course of lead or alcohol, coffee or tea poisoning, or the spasmophilia may develop from some local cause, possibly relics of meningitis or encephalitis, consecutive to some acute infection in early childhood. We all know instances where extraction of a wisdom tooth, of a polyp in the nose, or of hardened wax in the ear has arrested a tendency to epilepsy even of long standing. He remarks that it is useful to read over the cases of this kind, that are so numerous in the literature, in order to impress on one's mind the imperious obligation in the presence of an epileptic to eliminate every possible acquired local cause for spasmophilia before ascribing it to heredity, or diagnosing it as common, essential epilepsy. The continuous abnormal excitation transmitted to the motor neuron from the foreign body, sequester, calculus, helminths or carious tooth, keeps up a kind of tetanization of the hyperactive motor nerve cell, and the partial or complete epileptic seizure is the result. This is hastened and intensified by any superposed toxic action. Digestive auto-intoxication is the main and usually the only source for the toxic action. He has found the liver pathologic in almost every epileptic he has had occasion to examine. This coincidence explains the absolutely unexpected arrest of the seizures in many epileptics who were given treatment addressed to the liver.

Schweizer Archiv für Neurologie und Psychiatrie, Zurich

1917, **1**, No. 1

62 Definition of "Somatogenous" and "Psychogenous." Dubois.—p. 8.
63 The Mendelian Laws in Psychoses. E. Bleuler.—p. 19.
64 Anatomic Findings in Congenital Spastic Paraparesis in Adult Idiot. During.—p. 41.
65 Aplasia and Hypoplasia of Neocerebellum. R. Brun.—p. 61. To be continued.
66 The Static Tonus and Its Rôle in Nervous Pathology. M. Egger.—p. 124.
67 The Connecting Tracts between the Cerebellum and the Stem of the Brain. H. Uemura.—p. 151. Concluded in No. 2, p. 342.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 21, 1918, **39**, No. 23

68 Mercury Bicarbonate in Analysis of Ammonia and Purin Bodies in Organic Fluids. E. Pittarelli.—p. 225.

March 24, 1918, **39**, No. 24

69 *Reaction of the Blood to Tuberculin. A. Barlocco.—p. 233.

March 31, 1918, **39**, No. 26

70 *Treatment of Frozen Feet. G. Cocci.—p. 254.

69. **Reaction of Blood to Tuberculin.**—Barlocco describes the morphologic reaction of the blood to the cutaneous and subcutaneous introduction of tuberculin in healthy and tuberculous subjects. In the healthy there did not seem to be any appreciable change in the blood after subcutaneous injection of 0.001 gm. of tuberculin, but with a larger dose there was pronounced hyperleukocytosis with neutrophilia. In the tuberculous, injection of 0.001 gm. tuberculin, or even half this, induced a neutrophil hyperleukocytosis with sometimes slight eosinophilia. This reaction is independent of the eventual thermic reaction to the tuberculin. He gives charts and tables from typical cases to illustrate these findings, as also the findings after the skin tuberculin test. They seem to be the same in all these conditions, differing merely in degree and proportionate to the amount of tuberculin used. The lymphocyte curve does not seem to be modified.

70. **Treatment of Frozen Feet.**—Cocci refers to extremely grave freezing of the feet with gangrene and mutilation. In his service the mortality of these cases with freezing of the third degree was from 70 to 80 per cent. until he began to sear them with a red hot iron, passing it flat and slowly over the gangrenous surface to the line of demarcation. The tissues thus destroyed are only those already devitalized by the gangrene. The heat induces such an afflux of lymph and blood that the tissues beneath start to heal naturally, and as the scorched tissues are cast off, healthy granulations are found beneath. The fever subsides and with it the edema, the gangrene becoming dry gangrene. This favorable outcome is not constant, but it occurs often enough to render this method of treatment far superior to anything else he has tried, and saved months of suffering and extensive mutilations in many cases. The streptococcus was found in a pure culture in the blood in most of these severe cases.

Policlinico, Rome

April 14, 1918, **25**, No. 15

71 *Dermatitis in Sorghum Cutters. G. Hoffer.—p. 341.
72 Nonirritating Treatment of Scabies. L. Tommasi.—p. 343.
73 Sudden Death in Six Months' Infant with Previously Latent Inherited Syphilis. C. Ruhl.—p. 349.

April 21, 1918, **25**, No. 16

74 Frame for Applying Plaster Cast under Roentgen Control. L. Gavazzeni.—p. 365.
75 *Clinical Signs of Anatomic Healing of Pulmonary Tuberculosis. P. Rusca.—p. 369.
76 Primary Edema in Malaria. F. Paoletti.—p. 373.

71. **Dermatitis in Sorghum Harvesters.**—Hoffer found a peculiar dermatitis in twenty-five members of seven different families engaged in cutting sorghum. It gradually subsided in the course of three or four weeks. A parasite resembling a parasite found in flour was found in the sorghum and was probably responsible for the dermatitis.

75. **Signs of Healing Tuberculous Process.**—Rusca analyzes the signs he has found in soldiers showing a clinical cure of pulmonary tuberculosis under prolonged sanatorium treatment: After all the previous symptoms have subsided and the general health has improved, there may be pains in the region that was the site of the process. As the fibrous cicatricial tissue forms it may pull on the adjoining tissues, and the nearer to the pleura, the more pronounced the pain. The toxi-infectious process may have rendered the nerves in the region more sensitive. These painful sensations are a sign of healing; they are not accompanied by return of the old symptoms, and there is no tender spot to be found in the region. The painful sensation is continuous, and has no connection with the respiration or the position, and it subsides in a few days. This pain with a healing tuberculous process is probably often mistaken for casual neuralgia, or congestion. Rusca also calls attention to the occurrence of minute hemoptysis as another sign of the healing of the focus. It occurred after effort, as for example at defecation, and the hemoptysis seemed to be connected with the painful sensation mentioned above, as the latter usually preceded, accompanied and followed it. The sputum was slightly tinged with blood, not enough to redden it, but merely to give it a salmon-color tint. The microscope shows well preserved elements of the blood but no pus or tubercle bacilli. Several writers have emphasized the tendency to capillary hemorrhage in the sclerosis of a tuberculous focus in the lung. Extensive hemoptysis occurs with destructive processes, but the capillary hemorrhages seem to occur only in the circumscribed, well encapsulated processes, or with the penetration of newly formed vessels into the forming cicatricial fibrous tissue. This salmon-tint hemoptysis was never preceded or followed by the slightest exacerbation of the auscultation findings. The bleeding probably proceeds from some newly formed and not quite complete new blood

vessel, which had ruptured under the preceding physical exertion. This slight hemoptysis is thus an additional proof of the anatomic repair going on. His conclusions that the above mentioned local pains and the minute hemoptysis are signs of favorable import are based on wide experience of numbers of cases traced for months or years afterward.

Riforma Medica, Naples

March 30, 1918, **34**, No. 13

77 *Gastric Ulceration Effect of Poison Gases. Zagari.—p. 242.
78 *To Promote Healing of Skin. D. Taddei.—p. 245.
79 Noma Following Paratyphoid B in Child. E. Romanelli.—p. 248.
80 The Present Status of the Thymic Syndrome. R. de Nunno.—p. 250.

April 6, 1918, **34**, No. 14

81 *The Stool Signs of Liver Disease. R. Campana.—p. 262.
82 *The Granular Red Corpuscle Count. F. Ravenna.—p. 263.
83 The Mouth and Pharynx in Typhoid. A. Campani and F. Bergolli.—p. 264.
84 *Diagnosis of Cancer of the Liver. A. Ferrannini.—p. 269.

77. Hematemesis after Poisoning from War Gases.—Zagari reports the case of a previously healthy robust soldier who was knocked down unconscious by an exploding bomb which contained a toxic gas. He was not picked up and did not regain consciousness for about twenty-four hours. While others suffered from the effects of the gas in the air passages, he had no symptoms from them and no laceration, merely a pain in the lumbar region and a little blood in the urine, and in a few days symptoms indicating ulceration in the stomach. The ninth day he vomited blood, and the hematemesis recurred five times in the following three months. Under treatment of the gastric ulcer and the hemorrhagic tendency, the man recuperated and he has had no further symptoms on the part of the stomach for two months to date. [A communication was read recently before the Paris Société des Hôpitaux which was struck out of the published records by the censor, but brief reference to it by another speaker showed that it was a similar report on gastric ulceration from the toxic action of war gases.]

78. Treatment to Hasten Healing of Epithelium.—Taddei reports that his experience in thousands of cases has confirmed the way in which iodin promotes the healing over of a wound when applied after the cavity of the wound has filled up with granulations. He lays a strip of ordinary adhesive plaster on a compress and swabs the adhesive side with a 10 per cent. tincture of iodin. When dry, it is cut in strips 4 or 5 mm. wide and from 3 to 8 cm. long and these strips are applied to the edge of the wound, the strip fitting for 1 mm. on the epithelial margin of the wound and the other 3 or 4 mm. on the granulation tissue. Three, four or six of these strips are applied to outline the wound like a narrow frame. The iodin applied in this way seems to stimulate the production of epithelium while protecting it when the dressings are changed. He states that in many cases the epithelium healed over as promptly and effectually as if Thiersch grafts had been applied. The plaster alone without the iodin, does not answer the purpose so well.

81. Stool Signs of Liver Disease.—Campana remarks that when there is an irritative process in the liver, the stools show cellular detritus, nuclei of liver cells, leukocytes, the bile pigments of these cells and glycogen. These pass out of the liver with the bile into the intestines, and can be detected in the stools. The patient must be kept for a few days before on starchy and albuminoid food, and the teeth must be clean and the anus washed with soap and thoroughly dried. He refers in particular to the findings in the stools as revealing syphilitic hepatitis.

82. Granular Red Corpuscles.—Ravenna declares that the best method known to date for showing up the granular reds is with a 0.8 per thousand solution of brilliant cresyl blue in a 7 or 8 per thousand solution of sodium chlorid, kept at 37 C. for fifteen minutes, or at 16 or 18 C. for thirty minutes.

84. Diagnosis of Cancer of the Liver.—Ferrannini emphasizes that metastasis is less frequent and less early with cancer of the liver than with malignant disease elsewhere, as a rule. He cites twenty authors in the last twenty years who have come to this conclusion. In three cases in adults in his own experience there was no trace of involvement of the supraclavicular glands but merely some enlargement of the retroperitoneal glands, and some in the omentum. There was no pronounced emaciation, and in one patient the complexion was ruddy, except where there was a tendency to cyanosis from the interference with the circulation by the ascites. The patients were at the cancer age, near 50; the liver felt knobby, and it had increased rapidly in size; there was no jaundice or eosinophilia, but there were symptoms on the part of the stomach resembling those with gastric cancer. Echinococcus disease seemed probable at first, but this diagnosis was dropped on discovery of the enlarged glands back of the peritoneum and in the omentum, which also excluded syphilitic gummatous disease of the liver. He emphasizes these differentiating points as they contrast with those of Griffith's recent compilation of fifty-seven cases of cancer of the liver in children. Cachexia and metastasis were common, but ascites and jaundice were rare among the children.

Rivista Critica di Clinica Medica, Florence

Feb. 23, 1918, **19**, No. 8

85 *Determination of Glucose in the Urine. G. Ugdulena.—p. 85.

March 30, 1918, **19**, No. 13

86 Adenoids and Military Service. V. Grazzi.—p. 145.

April 13, 1918, **19**, No. 15

87 Dysenteriform Diseases at a Base Hospital. A. Roccavilla.—p. 169. Conclusion.

85. Quantitative Determination of Glucose in the Urine.—Ugdulena comments on the importance from the military standpoint of the determination of permanent glycosuria and the elimination of the factitious—all of which requires repeated examinations, and a simplified technic. For this he uses two sets of ten test tubes. The first ten tubes have straight sides and serve for the dilution of the urine. The first tube is filled with urine. In the other nine he places 2 c.c. of urine in each, and adds 1, 2 or 3, up to 9 c.c. of distilled water, the number of cubic centimeters of fluid in each corresponding to the number of the tube in the series. The ten tubes of the second set taper to a point. The Fehling reagent solution is placed in each up to the 5 c.c. mark and then urine is added to the mark showing 2.37 c.c. in addition. The urine for this purpose is taken for each tube in the second set from the correspondingly numbered tube of the first set. After they have been thoroughly agitated, a few drops of liquid petrolatum are poured on top to form an airtight covering, several millimeters thick. The tubes of the second set are then placed in their standard in the water bath and kept for ten minutes at a temperature of 95 or 100 C. The number of the test tube which contains the minimal dilution compatible with complete reduction of the Fehling solution, represents the percentage of glucose in the urine. No calculations are necessary, as we know that 50 c.c. of Fehling's solution is reduced by 23.75 c.c. of urine containing 1 per cent. glucose. With the ten tubes containing each 5 c.c. of the reagent and one-tenth of the 23.75 c.c. of urine, that is, 2.37 c.c. in each tube, the tube in which there is complete reduction evidently corresponds to 1 per cent. of glucose. If this diluted urine came from tube No. 4 of the first set, that is, the tube in which the urine had been diluted with three parts water, then we know that the figure 4 represents the percentage of glucose in the urine. A colored plate shows the two sets of tubes, the markings, etc., so that the whole technic can be seen at a glance. The urine keeps well under the liquid petrolatum so that the tubes can be examined and reexamined at leisure.

Brazil-Medico, Rio de Janeiro

March 2, 1918, **32**, No. 9

88 *Acute Case of Brazilian Trypanosomiasis. E. Villela.—p. 65.
89 Eugregarina Parasite of Brazilian Arthropods. III. C. F. Pinto.—p. 65.
90 *Leishmaniosis of the Nose. C. de Rezende.—p. 66.

88. Chagas' Disease in Brazil.—Villela reports the first acute case of this trypanosomiasis in the state of S. Paulo

in Brazil; it is the third case known in which skin lesions formed part of the clinical picture. The beetle known to be the host of the *Trypanosoma cruzi* was found in a certain locality in the state, and he then examined the inhabitants and found this acute case of Chagas' disease, with multiple skin lesions, in a child of 16 months. All the three generations in the family showed goiters, and this child had the aspect of myxedema, slight fever and enlarged glands, spleen and liver.

90. **Destructive Leishmaniosis.**—The illustration shows the destruction of the nose and nasal fossas by the leishman process. The patient was a boy of 16 and the trouble had commenced eight months before like a pimple on the nostril. Under local treatment with tartar emetic it healed promptly and completely, and the boy now breathes normally through his nose notwithstanding the loss of the septum. The results were equally favorable in three other cases, all healing under local treatment alone. De Rezende combines the drug with substances that penetrate deep into the tissues and others which form a varnish so that the application sticks and hardens, not requiring any dressing. His formula is 0.2 gm. each of arsenic trioxid, copper sulphate, methylene blue and of methyl violet; 0.5 gm. quinin; 0.75 gm. tartar emetic; and 1 gm. each of camphor, menthol, phenol and antipyrin, the whole forming a salve which is applied with a cotton-wound toothpick two or three times a week. In less than a month the lesion had completely healed in the severe case illustrated.

Medicina Ibera, Madrid

March 7, 1918, **2**, No. 18

91 Chronic Psychosis with Hyperthyroidism. F. Sanz.—p. 287.
92 *Photographic Record of the Pulse. G. Casares.—p. 289.
93 Tuberculosis of the Testicles and Heliotherapy. J. Esquivel.—p. 290.
94 Treatment of Severe Acne. Sicilia.—p. 294.

March 14, 1918, **2**, No. 19

95 *Beriberi in Spain. F. F. Martinez.—p. 313.
96 Auscultation in Early Diagnosis of Pulmonary Tuberculosis. G. Triviño.—p. 315.
97 Placenta Praevia. J. Botella y Montoya.—p. 318.
98 *Physiotherapy for Gastric Ulcer. S. Carro.—p. 320.

92. **Photographic Record of the Pulse.**—Casares gets a photographic record of the oscillations of the fluid in a small U manometer containing water, alcohol, acetone or ether. He calls the apparatus for the purpose a palograph and the tracings palograms, from the Greek word *palos*, to "palpitate." This palography reproduces, he says, the movements of the heart, of arteries and veins, with a detail hitherto unattainable. No further details are given.

95. **Beriberi in Spain.**—Martinez has discovered in Spain cases of amebic dysentery, kala-azar in children and cutaneous leishmaniosis, and now he reports a case of beriberi—none were imported cases. The beriberi case was in a fisherman of Granada who was admitted to the hospital with the diagnosis of polyneuritis, but the symptoms on the part of the heart, the cachexia and the absence of malaria, alcohol and syphilis in the antecedents led to the assumption of beriberi, a year after the first symptoms had appeared. Under repose, nourishing diet, avoiding fish, rice, potatoes and the other dishes to which he was accustomed, and a tonic, with massage, the symptoms gradually subsided to a complete recovery in time.

98. **Diathermy in Treatment of Gastric Ulcer.**—Carro extols the efficacy of diathermy in treatment of ulcerative or inflammatory processes anywhere in the digestive tract and especially for gastric ulcer. In three cases of gastric ulcer described, the lesion had not been modified by the usual courses of treatment, but the improvement under the thermopenetration was pronounced. In all the gastric ulcer was of several years' standing. Hyperchlorhydria is the rule with gastric ulcer, and this keeps the ulcer from healing. Anything tending to promote secretion of gastric juice is contraindicated with gastric ulcer. The diathermy also benefited materially a man of 54 with dysenteriform ulcerative colitis of ten years' standing. The improvement was most gratifying, the stools losing their diarrheic character and the pains becoming much attenuated. Carro gave from eight to twenty sittings in the gastric ulcer cases. He begins with 1 or 1.5 amperes and never goes over 2.5. The sittings are given daily, twenty or thirty minutes long.

Revista dos Cursos, Fac. de Med., Porto Alegre

1917, **3**, No. 3

99 Lumbar Syndrome from Wound of Spinal Cord. F. Barros.—p. 5.
100 *Four Primary Infections with Syphilis. C. Wallau.—p. 9.
101 *Operative Removal of Foreign Bodies. C. Wallau.—p. 13.
102 The Pituitary Body. F. Esposel.—p. 28.
103 Alkaptonuria. G. Blessmann.—p. 50.
104 Antirabies Service. G. Vianna.—p. 64.
105 The Lines in the Parietal Bone. F. da Fonseca.—p. 69.

100. **Reinfection with Syphilis.**—Wallau's patient is a man of 30 who beginning in 1906 has had four primary lesions in turn, at intervals of seven years and about one year. In the course of these experiences he has been given a total of 7.5 gm. of arsphenamin (salvarsan), and 944 gm. mercury by inunction, besides twenty intramuscular injections of mercury. He has been in good health free from symptoms during the last two years.

101. **Foreign Bodies.**—Wallau emphasizes the necessity for not trusting to the patient's statements as to sensations, etc., with a foreign body. In one case a man insisted that the set of false teeth he had swallowed could be felt in the stomach, but the organ was empty when opened. Under chloroform the man vomited profusely, and thus expelled the set which had been impacted in the esophagus. In times of epidemics an unsuspected foreign body may be mistaken for the prevailing disease, as in the case of a child with supposed diphtheria symptoms until a scrap of wood was found sticking in the throat. In his three cases of myiasis of the nose, one of the patients succumbed to meningitis; in the other two the larvæ were washed out in time with weak solutions of mercuric chlorid and creolin. In two other cases a glass tumbler was removed from the rectum. One tumbler was 7.5 cm. tall by 7.5 in diameter at the top; the other tumbler was 9 cm. tall by 6 in diameter. Both were removed whole. In a recent case of supposed cancer of the vagina, a fragment from a pessary used for a short time years before proved the cause of all the disturbances.

Revista de Medicina y Cirugia Practicas, Madrid

Feb. 7, 1918, **118**, No. 1493

106 Indications in Appendicitis. J. Blanc y Fortacin.—p. 129.

March 7, 1918, **118**, No. 1497

107 *Experiences with Spinal Anesthesia. J. Blanc y Fortacin.—p. 257.
108 *Unusual Conditions in Hernias. J. Blanc y Fortacin.—p. 264.

107. **Spinal Anesthesia.**—Blanc has found the anesthesia available in from three to ten minutes after injection of the anesthetic into the spinal canal; the sensation of contact is retained. The anesthesia was a success for operations on the legs but, for herniotomies, sometimes a few whiffs of chloroform were necessary in addition. In his 200 cases of intraspinal anesthesia there were serious mishaps only in two cases. In one of these by mistake the assistant had made the solution with 0.12 gm. of novocain, and syncope followed, requiring artificial respiration under which the patient promptly recovered. In the other case the patient was an elderly man with impassible stenosis of the urethra, and the operation was for retrograde catheterization. The operation was brief but there was some cyanosis afterward and coma followed in an hour with death in another hour.

The anesthesia lasts about two hours and there is sometimes headache, but it is very slight and brief. There is often a febrile reaction, evidently from aseptic irritation of the meninges as the spinal fluid looks turbid the next day and there is polynucleosis, but all returns to normal by the third or fourth day. Vomiting and paresis were never observed. He operated above the umbilicus only in one case, on an echinococcus cyst in the liver, and the operation was a smooth success. The anesthetic used was generally 6 cg. each of stovain, glucose and 1 per thousand epinephrin in 1 c.c. of physiologic serum. Of late he has been using cocain and epinephrin.

108. **Unusual Features of Hernias.**—When the cecum is sessile on and adherent to a hernial sac containing the appendix, Blanc warns that there are likely to be vessels at this point on which the cecum depends for more or less of its nourishment, and hence a plastic operation is usually necessary, through a second incision in the abdomen above. In two of his cases the hernial sac was formed of a diverticulum in the bladder. The nature of the hernia was not suspected until the hernial sac was incised and the pink color of its lining attracted attention. In both cases the diverticulum was surrounded and concealed by masses of fat. He excised the diverticulum in one case and inverted it in the other. In many cases, traction on the hernial sac pulled the bladder down into view. In one case a direct hernia had caused no trouble as it was kept under control by a truss. Then suddenly it increased in size and distended the scrotum but was not painful. With the diagnosis of hydrocele superposed on the congenital hernia, he incised the supposed hydrocele and found it an echinococcus cyst.

Revista Sud-Am. de Endocrinologia, Buenos Aires

March, 1918, **1**, No. 3

109 Oil Extract of Corpus Luteum in Treatment of Sterility and as Stimulant during Pregnancy. G. Giacobini.—p. 71.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 1

110 *Biologic Processes in Tropical Soils. P. A. A. F. Eijken and G. Grijns.—p. 1.

1917, No. 2

111 Tuberculosis in Java. C. D. de Langen and J. Schut.—p. 1.
112 *Tuberculosis in Uncivilized Tribes. J. Schut.—p. 3.

110. **Biologic Processes in Tropical Soils.**—These bulky volumes are issued by the Civilian Medical Service of the Dutch West Indies. They are published in the Netherlands language and in English, in parallel columns. This number of 150 pages is devoted to questions relating to the disposal of night soil and sewage in tropical conditions. The biologic processes occur with greater intensity in tropical soil, so that large quantities of organic matter are rapidly decomposed in a small space, with destruction even of intestinal bacteria. Hence, it is said, the closed septic tank offers peculiar advantages on this account in tropical countries, with oxidizing beds for the effluent.

112. **Tuberculosis in Virgin Soil.**—Schut reviews what is known to date in regard to pulmonary tuberculosis among savage tribes and natives of remote districts where the disease finds virgin soil. In the East Indies tuberculosis is rare, while other diseases giving a positive response to the skin tuberculin tests are common, and in the natives the response is nearly always negative with frank tuberculosis. Consequently, the Pirquet test is not reliable in the diagnosis of tuberculosis among the natives. He ascribes the higher mortality from tuberculosis—when such exists—among the native East Indians to the low resisting power from the climate, conditions of life and endemic diseases. There is no need to invoke a "virgin soil theory" to explain why tuberculosis runs a particularly acute and dangerous course in them.

Norsk Magazin for Lægevidenskaben, Christiania

April, 1918, **79**, No. 4

113 *Constitutional Hypersusceptibility and Asthma. A. de Besche.—p. 377.
114 *Rhinogenous Optic Neuritis. B. Malling.—p. 414.
115 *Acute Bulbar Paralysis. L. Nicolaysen.—p. 428.
116 Electrocardiography in Diagnosis. N. B. Koppang.—p. 433.

113. **Constitutional Hypersensitiveness and Asthma.**—De Besche reports the case of a physician of 30 who developed an alarming condition for an hour or so after a preventive injection of diphtheria antitoxin. This was a year or so before attention had been called to the danger of symptoms suggesting anaphylactic shock with injection of antitoxin when there is constitutional hypersensitiveness to horse serum and horse emanations. The physician knew that, from childhood, when he had anything to do with horses symptoms resembling those of hay-fever developed, with asthma. De Besche has made a special study of this idiosyncrasy to horses, and reports the details of eleven cases and one in which the idiosyncrasy was to cats. In eighteen other cases of asthma, no connection with horses or other animals could be detected. An idiosyncrasy of this kind can be rendered evident by touching the skin of a horse with the finger and then placing the finger on the conjunctiva of the patient's eyeball. In all cases of horse asthma, pronounced redness, lacrimation and slight edema follow, and sometimes sneezing. There is no appreciable reaction in the absence of this idiosyncrasy. The reaction is also instructive but is less constant when a drop of the horse serum is applied to a scarified area, as for vaccination against smallpox. A blister forms. He remarks that it might be advisable to apply these eyeball and scarification tests before injecting antitoxin in persons subject to asthma or hay-fever, and thus be able to exclude an idiosyncrasy. In his total twelve cases of horse asthma, in some the idiosyncrasy was to horses alone; in others also to cows, dogs and goats. Two had also hay-fever, and a tendency to hay-fever or asthma was common in other members of the family in several cases. In some of the horse-asthma cases the manifestations of the idiosyncrasy were accompanied by abdominal pain and vomiting or diarrhea. The physician first mentioned had a severe attack of the horse asthma once after dinner on a day when there had not been any known connection with horses. But the precipitin test, applied to the sausages from which he had eaten, revealed horse meat in them. One of the horse-asthma patients developed typical attacks also after eating strawberries. De Besche mentions that the attacks in his cases were exactly like those described by Willey, Bacon and Wright in THE JOURNAL, 1908-1909.

114. **Rhinogenous Retrobulbar Optic Neuritis.**—Malling reviews thirty-seven publications bearing on this subject and describes a case from his own experience in which a previously healthy woman of 40 developed a highly febrile diseased condition in the nose and left ear, confining her to bed for some time. A polyp had been removed from the nose just before. Two or three months later vision became impaired, and by the sixth month there were signs of beginning atrophy of the optic nerve. Nothing was found to suggest any other cause than the nose-ear trouble. Under potassium iodid, vision improved somewhat, but it was still only $\frac{5}{18}$ in the right and $\frac{5}{60}$ in the left eye. The ethmoidal cells then were found extremely pathologic and they were cleared out. Improvement was prompt and pronounced, vision in a few days increasing from $\frac{5}{12}$ to $\frac{5}{6}$ and from $\frac{5}{24}$ to $\frac{5}{12}$ while the scotoma disappeared and the blind spot returned to normal. The only pathologic findings in this case were the chronic ethmoidal sinusitis. The retrobulbar optic neuritis and secondary atrophy were characteristic of the rhinogenous type of eye disease, especially in the fluctuating course. The scotoma was always most pronounced in the early morning, possibly because the nose drained better when the patient was up and about. It was noticed further that the scotoma was much less pronounced when the flow of mucopus from the nose was freest. Even if the patient proves later to have had incipient multiple sclerosis as the explanation of her retrobulbar neuritis, the search for and cure of her sinusitis rendered conditions for vision much more favorable.

115. **Acute Bulbar Paralysis.**—A man of 62 had been previously healthy except for occasional migraine. Then he had an attack of dizziness and vomiting for nearly two days but there was no headache or other symptoms. The next day he found he could not swallow. The whole act of swallowing was paralyzed. He learned to feed himself through a stomach tube and after several months a faint tendency to return of the ability to swallow is now evident. Electric treatment had been patiently applied but had not seemed to benefit.

Ugeskrift for Læger, Copenhagen

April 4, 1918, **80**, No. 14

117 Blunders in Diagnosis of Pregnancy. H. Wulff.—p. 547.
118 *The Chemical Reactions of Poisonous Safety-Match Boxes. J. Christiansen.—p. 555.

118. See Abstract 114, p. 1344.